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Prepared by
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May 1983

Energy Division
DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION
32 South Ewing
Helena, Montana 59620
(406) 444-6697

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The first *Almanac* (1978) was prepared by Gail Kuntz. Without that excellent model, the task of preparing the two subsequent editions would have been far more difficult.

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PREFACE

The 1982 *Montana Energy Almanac* is a reference source for the Montana public, members of the state Legislature, and all other persons interested in obtaining information concerning Montana's energy legislation, policies, and programs. The *Almanac* also contains summaries of Montana energy production, consumption, and reserves, prospective energy development plans, and regional, federal, and private-sector energy-related activities of concern to Montanans. The information included, with the exception of the descriptions of the energy-related programs and activities of other departments of state government, local governments, and the private sector, has been summarized primarily from the programs, staff activities, and data files of the Montana Department of Natural Resources and Conservation (DNRC). Many of the agencies and organizations listed in the *Almanac* provided the material describing their activities.

The energy consumption, production, and reserves data presented in chapter 2 were gathered from many state, federal, and private organizations whose publications are on file in DNRC's Energy Division; more detailed data with source citations are contained in DNRC's publication, *Montana Historical Energy Statistics.* The map of Montana's energy resources and facilities, also presented in chapter 2, was originally prepared in 1976. This map has been updated for the 1982 *Almanac* primarily from the Montana Bureau of Mines and Geology's 1982 map, *Energy Resources of Montana.* Montana energy legislation is summarized from the *Montana Codes Annotated* and from material presented in the Environmental Quality Council's publication, *Montana Environmental Index.* Information on proposed federal energy legislation was gathered from a number of sources, most importantly the Western Interstate Energy Board's newsletter, *Western Energy Update.*

Although most of the information in the *Almanac* was initially compiled during the summer and fall of 1982, every effort was made to update this material through early 1983. Nevertheless, some of the information presented may be outdated or incorrect by the time you receive the *Almanac.* We apologize for any inconvenience this may cause.

The *Almanac* is not an exhaustive inventory of energy-related programs and activities in Montana. However, we have tried to make it as comprehensive as possible. If you know of any energy-related programs that should be incorporated in the next edition of the *Almanac,* we would appreciate hearing from you. We also would appreciate any comments or suggestions you might have on ways we might improve the *Almanac,* or changes or corrections that we should make in its content.

1

INTRODUCTION

The policies, legislation, and programs summarized in this document are Montana's response to one of the most significant public concerns of the 1980s—the need to supply its people's energy requirements while preserving Montana's quality of life and planning for a more secure energy future.

Montana faces many of the same energy problems that confront the rest of the nation, including rising energy prices, uncertainties of supply, and major regional and national demands for its fossil fuel reserves. Extracting, converting, and transporting these energy resources affects the people and the land in numerous ways, many of which are undesirable. Generally, the greater the rate at which these resources are used, the greater the impacts.

Montana has enacted laws to ensure that the energy developments responsible for these impacts receive full public review and detailed study before they are approved. Long-range plans submitted by utility and energy companies to the Department of Natural Resources and Conservation (DNRC) project the eventual construction of new hydroelectric facilities, coal-fired power plants, transmission lines, and coal gasification plants to serve markets within as well as outside of Montana. Review of these projects by federal and state agencies is required by law.

Although Montana's fossil fuel reserves, particularly coal, are massive, the supply of these fuels is finite. Supplies of fossil fuel and large-scale hydroelectric generation eventually will not be able to satisfy new demands for energy, nor can all the impacts of extracting and converting fossil fuels be mitigated or compensated.

Conservation and renewable energy sources offer an alternative to traditional fossil fuel energy sources. Montanans can tap a range of renewable resources—direct solar, biomass, wind, water, and geothermal. The state's small, dispersed population makes Montana an ideal site for putting renewable energy sources to use. Government and Montana's citizens have taken the initiative in developing sustainable energy strategies, and industry is now actively pursuing opportunities to conserve energy. Energy conservation and the development of renewable energy sources are central features of a number of the programs described in the *Almanac.*

The 1982 *Montana Energy Almanac* updates the 1980 Almanac and describes the new energy-related activities that have occurred in Montana over the past two years. The *Almanac,* which was compiled from numerous reports, articles, and personal interviews, is designed as a reference guide to Montana's energy programs, policies, and laws. It describes the many energy activities in which Montana's industries, utilities, state and local governments, and citizens are engaged.

Chapters 1 through 5 describe Montana's current energy production and consumption levels, prospective energy development plans, the legislation enacted by the state to establish the framework of an energy policy, and the programs implemented by that legislation. Prospective or recently enacted federal energy statutes that would have an important effect on state energy activities also are summarized.

The national emphasis on seeking solutions to energy-related problems is reflected by the presence of a large number of regional and federal energy projects and planning efforts in Montana and other western states. Chapters 6 and 7 summarize the activities of regional and federal organizations and projects that have an important impact on Montana. At the regional level, the Northwest Power Planning Council, the Council of Energy Resource Tribes, the Western Governors' Policy Office, and the Pacific Northwest states address regional energy planning problems through individual and cooperative efforts. The U.S. Department of Energy is responsible for most federal energy-related programs. Also, because of the extensive federally managed acreage and hydroelectric facilities in the state, many of the agencies in the U.S. Department of the Interior (e.g., Fish and Wildlife Service, Geological Survey, Bureau of Indian Affairs, Bureau of Land Management, Bureau of Reclamation, and Office of Surface Mining), the U.S. Forest Service, and the U.S. Army Corps of Engineers have a significant influence on energy-related activities in Montana.

Chapter 8 describes the efforts of local governments to mitigate the impacts of high energy costs. The potential for effective energy planning at the local level, particularly for conserving energy and developing renewable, decentralized sources of energy, is great.

Chapter 9 discusses energy-oriented organizations from grass-roots solar groups to high-tech research and development institutes and utilities. Citizens' organizations are contributing to energy planning and decision-making processes. Montana's utilities are expanding their energy planning activities to include a number of innovative programs involving energy conservation, renewable and alternative energy sources, and cooperative projects with state and private groups.

Montana's Indian tribes also exercise an important influence on energy activities in the state. Chapter 10 examines energy developments on tribal lands.

Chapter 11 presents a status summary of Montana energy issues. Emphasis is placed on events that have taken place during the past two years. These issues include the coal severance tax challenge, coal slurry pipelines, export preference policy, the federal coal management program, oil and natural gas development, and state-federal roles in energy facility siting in Montana.

MONTANA ENERGY PRODUCTION, CONSUMPTION, AND RESERVES

Much of Montana is underlain with large fossil fuel reserves, giving the state a historic and continuing role as a major energy producer and exporter.

More than one-quarter of the nation's demonstrated coal reserve base is located in Montana, including 103 billion tons of subbituminous coal and 16 billion tons of lignite. These tonnages constitute 57 percent and 36 percent, respectively, of the 1980 U.S. subbituminous and lignite demonstrated reserve base.

While coal accounts for most of the state's known fossil fuel reserves, Montana also has important crude oil and natural gas deposits. As of January 1982, the Montana Oil and Gas Conservation Division estimated Montana's proven crude oil reserves at 203 million barrels. In 1981 the U.S. Department of Energy estimated that the state had 1,321 billion cubic feet of proven natural gas reserves. While these resources amount to less than 1 percent of the national crude oil and natural gas proven reserves, the employment and income generated by activity in the oil and gas fields have proved to be a major force in eastern Montana's economy in the past few years.

Montana's rivers also are an important energy resource, providing 2,117 megawatts (67 percent) of the state's presently installed electric generating capacity. Nonetheless, thermal electric generating plants continue to grow in importance. Twenty years ago, less than 5 percent of Montana's electricity was generated at coal-fired plants; in 1981 30 percent of the power produced in Montana was generated at coal-fired plants.

Figure II-A shows the location of: coal fields, coal mines, and thermal electric power plants; rivers and hydroelectric dams; transmission lines; oil and gas fields, pipelines, and refineries; uranium deposits; and oil shale occurrences.

As shown in table II-1, Montana's total energy production was 844 trillion Btu in 1981. Montana produces more than twice as much energy as it consumes; however, on a per capita basis, a Montanan consumes 39 percent more energy than the typical U.S. citizen. This is primarily due to the state's small, geographically dispersed population and its relatively high industrial (agricultural) energy consumption. Figure II-E compares energy production to consumption in Montana in 1980.

Montana's historical energy production and consumption by fuel type are illustrated in figures II-B and II-D, respectively. Montana consumes nearly 60 percent of its nonelectric energy in the form of petroleum, with motor gasoline constituting the largest share of the demand for petroleum products.

Industry, including agriculture, consumes more energy than any other sector and accounted for 44 percent of the nonelectric energy consumed in Montana in 1980. Figure II-C shows the state's energy consumption by end-use sector.

Montana's energy import-export situation is based on a number of factors, including intrastate and interstate market influences, limitations of existing energy transportation facilities (particularly oil pipelines), and resource ownership, as well as electrical energy flows and management patterns.

TABLE II-1
PRODUCTION AND CONSUMPTION OF ENERGY IN MONTANA

PHYSICAL UNITS

	Production				Consumption[1]			
Energy Source	**1978**	**1979**	**1980**	**1981**	**1978**	**1979**	**1980**	**1981**
Coal (million tons)	26.7	32.4	30.0	33.3	3.4	3.7	3.5	N/A
Dry Natural Gas (billion cubic feet)	47.1	53.9	53.8	50.1	73.0	70.0	61.0	N/A
Petroleum (million barrels)	30.5	30.0	29.6	30.8	30.6	35.7	31.0	N/A
Hydroelectric Power[2] (billion kWh)	11.7	10.3	10.0	11.3	8.4	8.4	8.1	8.4
Wood and Waste[3] (million kWh)	52.0	52.0	17.0	34.0	52.0	52.0	17.0	34.0

TRILLION BTU

	Production				Consumption			
Energy Source	**1978**	**1979**	**1980**	**1981**	**1978**	**1979**	**1980**	**1981**
Coal	465.6	566.6	523.3	582.4	40.2	45.2	41.4	N/A
Dry Natural Gas	47.1	53.9	53.8	50.1	73.8	71.1	62.2	N/A
Petroleum	170.9	168.0	166.0	172.9	171.2	204.8	177.4	N/A
Hydroelectric Power[2]	39.9	35.3	34.0	38.6	28.7	28.6	27.6	28.6
Wood and Waste[3]	0.2	0.2	0.0	0.1	0.2	0.2	0.0	0.1
TOTAL	723.8	824.0	777.1	844.1	314.1	349.9	308.6	N/A

N/A - Not Available

[1] Consumption figures do not include net out-of-state sales of electricity or associated electric generation losses which amounted to 5.5 billion kWh in 1978, 5.7 billion kWh in 1979, and 6.0 billion kWh in 1980.

[2] Montana's hydroelectric power consumption and interstate power sales were estimated as discussed in the source document.

[3] Used to produce electricity.

SOURCE: File material intended for publication in a forthcoming "Montana Historical Energy Statistics," Energy Division, DNRC.

FIGUF MONTANA

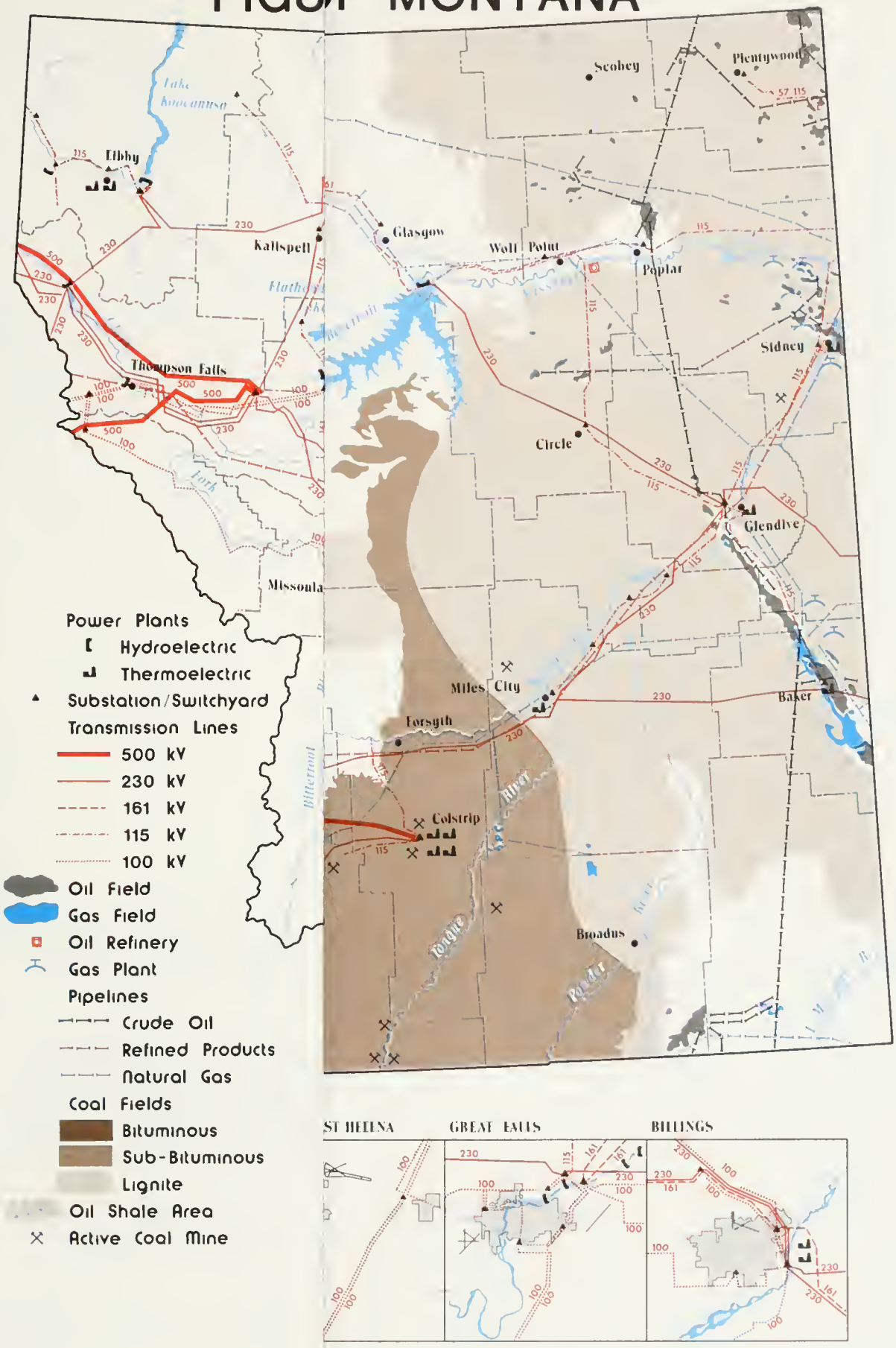


FIGURE II-A ENERGY RESOURCES AND FACILITIES OF MONTANA

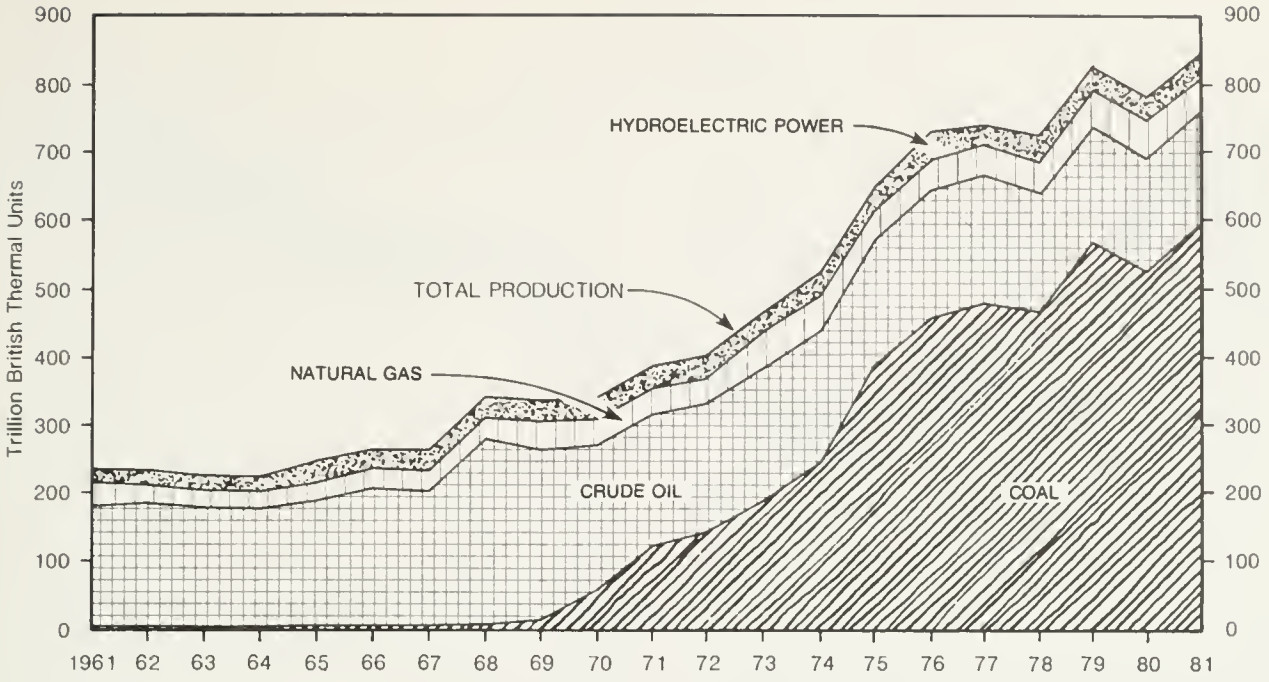


FIGURE II-B. PRODUCTION OF ENERGY IN MONTANA, BY TYPE OF FUEL, 1961-1981

SOURCE: File material intended for publication in a forthcoming "Montana Historical Energy Statistics," Energy Division, DNRC.

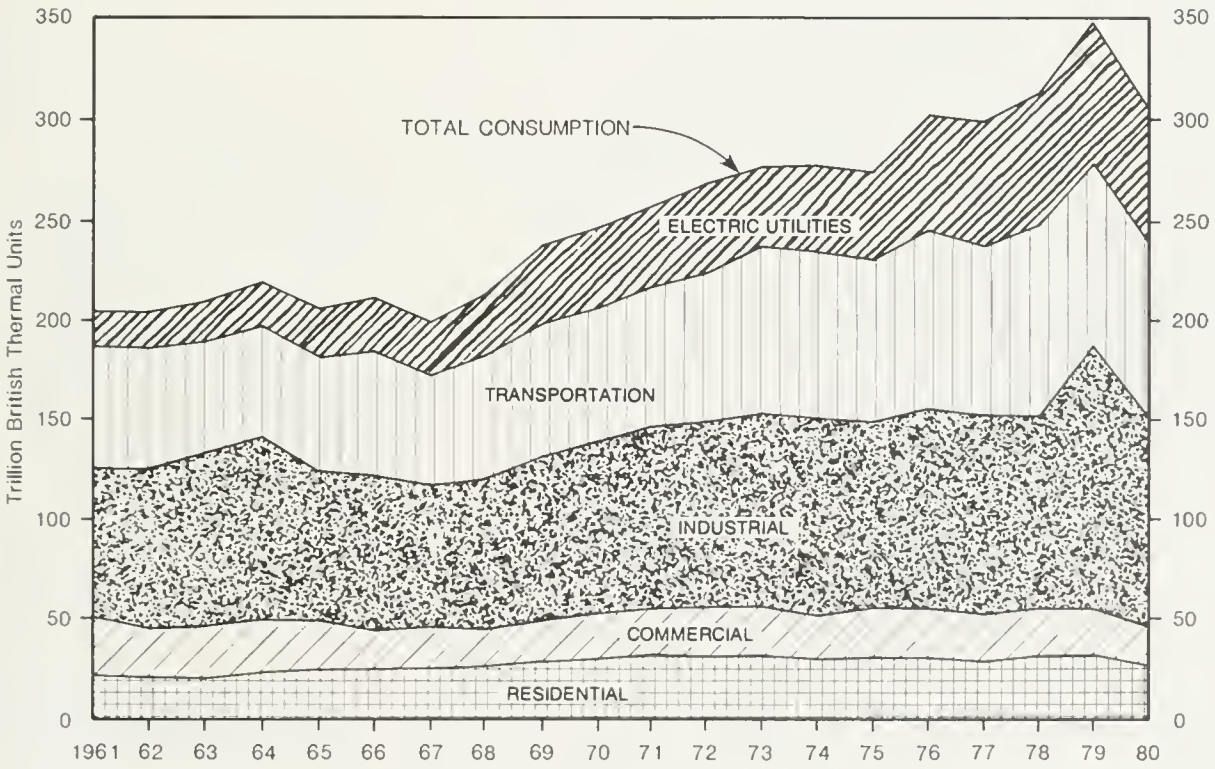


FIGURE II-C. CONSUMPTION OF ENERGY IN MONTANA, BY SECTOR, 1961-1980

SOURCE: File material intended for publication in a forthcoming "Montana Historical Energy Statistics," Energy Division, DNRC.

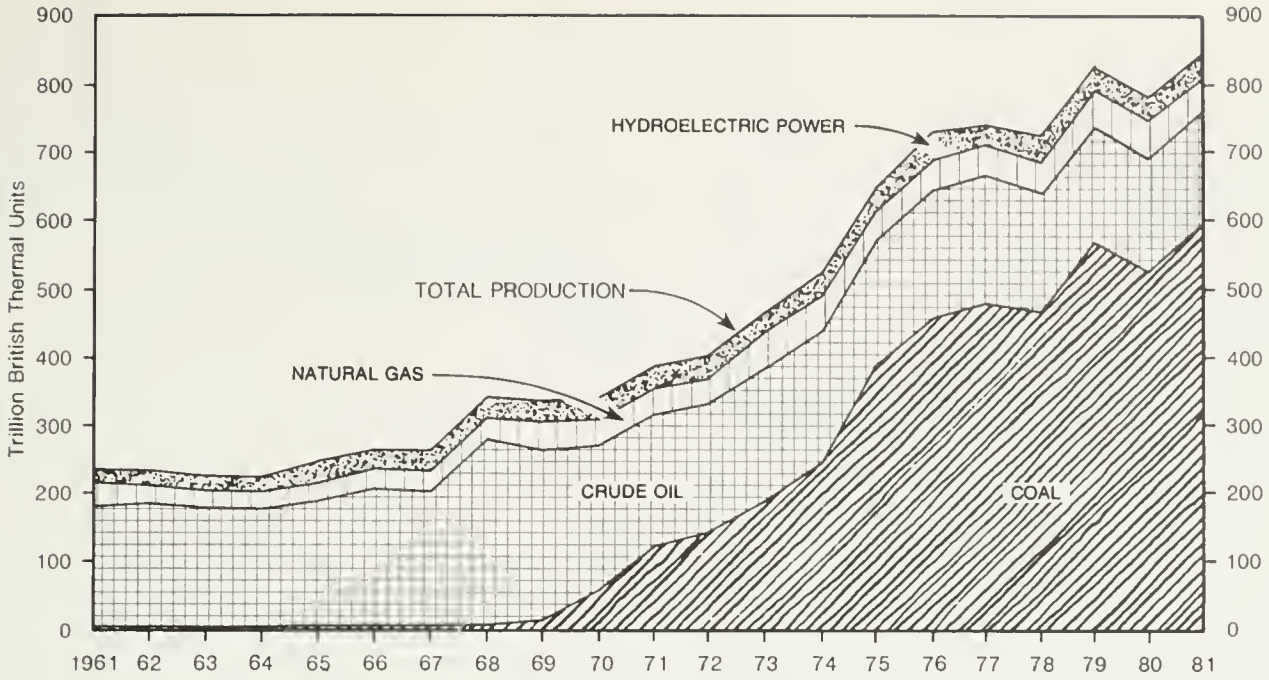


FIGURE II-B. PRODUCTION OF ENERGY IN MONTANA, BY TYPE OF FUEL, 1961-1981

SOURCE: File material intended for publication in a forthcoming "Montana Historical Energy Statistics," Energy Division, DNRC.

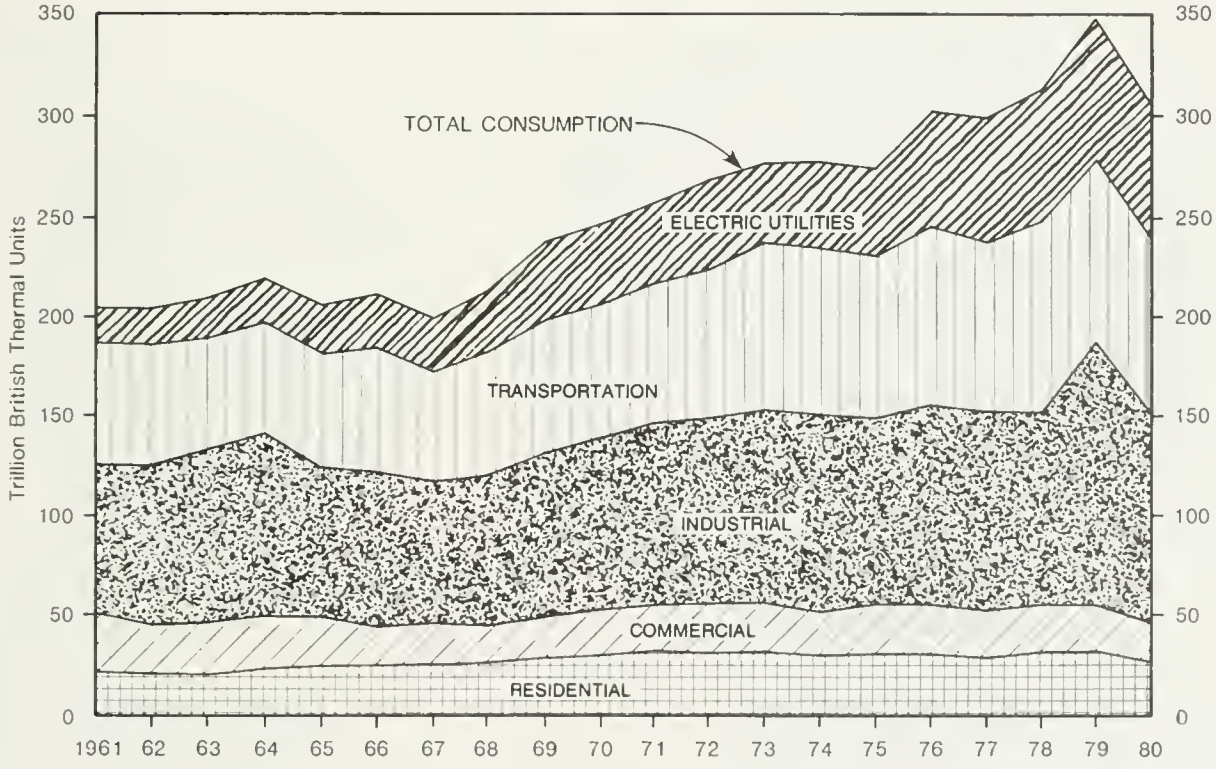


FIGURE II-C. CONSUMPTION OF ENERGY IN MONTANA, BY SECTOR, 1961-1980

SOURCE: File material intended for publication in a forthcoming "Montana Historical Energy Statistics," Energy Division, DNRC.

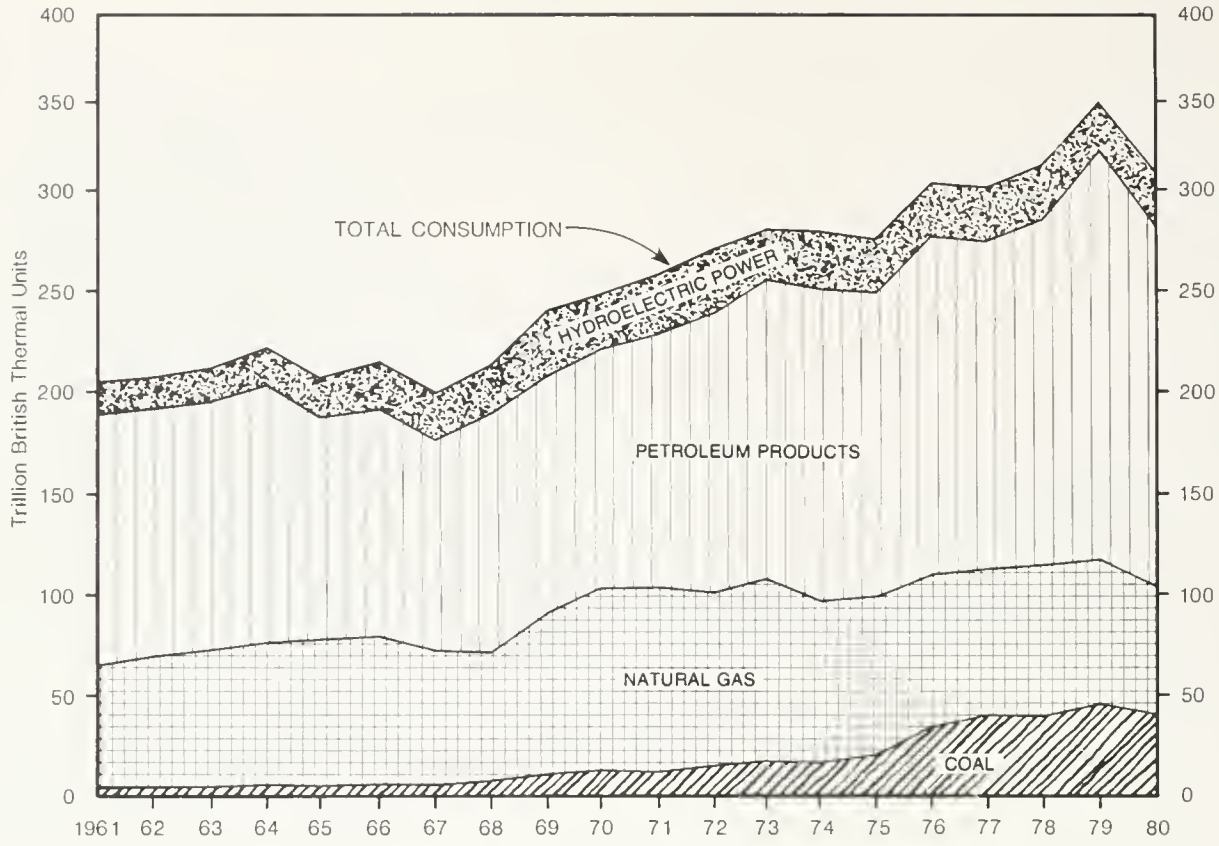


FIGURE II-D. CONSUMPTION OF ENERGY IN MONTANA, BY TYPE OF FUEL, 1961-1980

SOURCE: File material intended for publication in a forthcoming "Montana Historical Energy Statistics," Energy Division, DNRC.

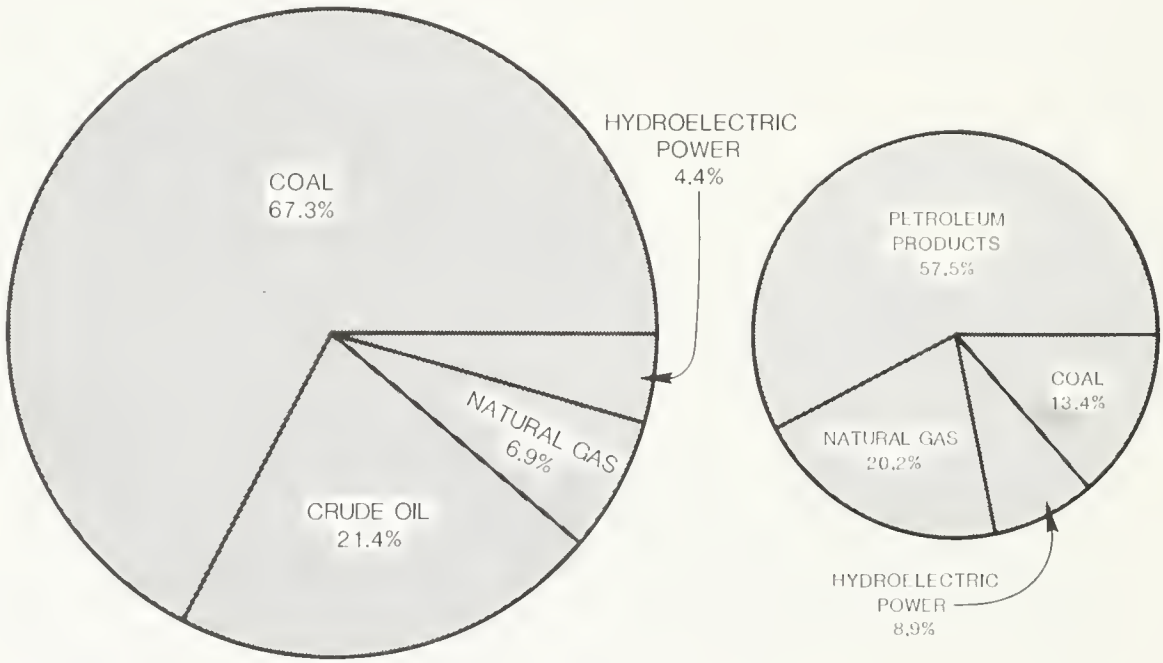


FIGURE II-E. PRODUCTION AND CONSUMPTION OF FOSSIL FUELS IN MONTANA IN 1980

SOURCE: File material intended for publication in a forthcoming "Montana Historical Energy Statistics," Energy Division, DNRC.

2.1. COAL

Coal is the nation's most abundant energy source; it is considered by some to be America's "ace in the hole," our hedge against dependence on foreign energy sources. In 1980 the U.S. Department of Energy estimated the demonstrated reserve base of coal in the United States to be 472,713.6 million short tons; more than one-fourth of this reserve base (120,428.0 million short tons) is in Montana.

Fifty-seven percent of the nation's subbituminous coal demonstrated reserve base and 36 percent of the nation's lignite demonstrated reserve base are in Montana. Forty-one percent of the demonstrated reserve base of coal in Montana occurs in geological formations where surface mining is feasible. Thirty-two percent of the nation's demonstrated reserve base of potentially surface-minable coal is in Montana.

Recoverable coal reserves are the quantity of coal that can be recovered in areas leased or owned by firms actively engaged in mining these coal deposits during a particular calendar year. In 1980 less than 7 percent of the recoverable coal reserves in the United States were in Montana. However, because of advances in surface mining technology and the relative ease with which Montana coal can be mined, 92.22 percent of the available coal was extracted from the coal-bearing geological formations mined in these areas during 1980. When coal mining efficiency is measured in terms of the average coal recovery percentage, coal mining in Montana ranks as the most efficient in the nation.

Compared to the size of Montana's coal resources, relatively little coal mining is now taking place within the state. Coal mined in Montana amounted to 3.6 percent of the total amount produced in the United States in 1980. The Rosebud coal bed in eastern Montana produced 12,568,000 short tons of coal in 1980, making it, in terms of production, the nation's fifteenth largest coal bed. In 1982 Montana produced approximately 27.8 million tons of coal, a 16 percent decrease from 1981 production. Table II-2 lists the companies that mine coal in Montana and their production in recent years.

TABLE II-2
EXISTING MONTANA COAL MINES

Company	Total Acreage Permitted (to nearest acre) December 31, 1981	1980 Production (tons)	1981 Production (tons)	1982 Production (tons)
Big Horn County				
Decker Coal Co.(East)	4,317	5,576,607	5,350,113	4,914,970
Decker Coal Co.(West)	3,565	5,616,695	5,331,626	4,884,920
Spring Creek Coal Co.	3,019	118,660	4,368,885	1,352,181
Westmoreland Resources	2,782	4,905,262	4,450,296	4,158,578
Rosebud County				
Western Energy Co.	6,229	10,401,972	10,352,966	9,424,857
Peabody Coal Co.	2,351	2,964,359	3,193,570	2,891,428
Richland County				
Knife River Coal Mining Co.	565	305,578	204,492	171,556
Musselshell County				
Divide Coal Co.	43	8,571	8,165	8,062
P.M. Coal Co.	100	11,189	7,404	15,141
Powder River County				
Coal Creek Mining Co.	120	64,398	64,142	16,608
Carbon County				
Beartooth Coal Co.	110	7,321	-0-	-0-
Blaine County				
Warburton	10	-0-	-0-	-0-
Custer County				
Hathaway Coal Co.	17	-0-	-0-	-0-
TOTALS	23,228	29,980,612	33,331,659	27,838,301

SOURCES: Montana Department of State Lands (acreage); Montana Department of Labor and Industry, Workers' Compensation Division (production).

Approximately two-thirds of the energy produced in Montana is in the form of coal, but because Montana has no major industries that use coal and because Montana relies more on hydroelectric plants than thermal electric plants to generate electricity, only about one-fifth of the amount of energy consumed in Montana is generated from coal.

In 1981 only 11 percent of the coal produced in Montana was consumed in the state; 93 percent of the coal burned in Montana was used to generate electricity. In 1981 Colstrip Units 1 and 2 produced nearly 80 percent of the total power produced by thermal electric generating plants in Montana; approximately half of the amount of electricity generated at Colstrip is committed out of state.

2.2. CRUDE OIL

Of the 31 million barrels of crude oil produced in Montana in 1981, 70 percent was exported, due in part to the fact that two of the most significant production areas, the Williston and Powder River basins, are not connected to the state's major refineries in Billings. Instead, the crude oil from these areas is shipped out of state.

The Billings refineries account for nearly 90 percent of Montana's total refined petroleum product output and depend heavily on Canadian and Wyoming imports. Of the 39.4 million barrels of crude oil refined in Montana in 1981, 30 percent came from Canada, 46.5 percent from Wyoming, 23.5 percent from Montana, and .04 percent from North Dakota. Approximately half the petroleum products refined in the state are exported, primarily to Washington, Idaho, Wyoming, and North Dakota.

The Montana Oil and Gas Commission estimated Montana's proven crude oil reserves at 203 million barrels as of January 1982.

Dependence on unstable foreign sources of crude oil is one of the nation's most worrisome energy supply problems. Even supplies of oil from Canada are not entirely secure. Alberta's oil quotas are reviewed periodically and the high quality light crude produced there is now provided only on an exchange or geographical trade basis.

Until October 1979, Canada was selling about 55,000 barrels of light crude oil to the United States each day; about 45 percent of this allocation was purchased by Montana refineries. As part of an effort to reduce its own dependence on foreign sources, Canada had scheduled an end to exported sale of oil in 1981. As a result of the 1979 world oil shortage and accompanying price escalation, Canada accelerated the phased cutback to ensure supplies of reasonably priced oil to eastern Canada refineries. Exports, reduced from 55,000 to 14,000 barrels per day in October 1979, were eliminated the following month.

To offset the loss of directly purchased Canadian oil, Canada has expanded U.S./Canadian exchanges. In this arrangement oil is delivered through the Glacier Pipeline from Alberta to Montana refineries. In return, the Montana refineries deliver an equivalent volume of crude oil to a refinery in eastern Canada.

This arrangement is subject to revision at the discretion of the Canadian National Energy Board. Although Canadian energy policy is in a state of flux, it is likely that Canada will continue to authorize the export of Alberta oil to Montana on an exchange basis, at least for the foreseeable future.

2.3. NATURAL GAS

Natural gas production in Montana was about 50 billion cubic feet (bcf) in 1981, a 7 percent decrease from 1980 production. Of this amount, 19 bcf was exported to Canada, Wyoming, North Dakota, and the Midwest. The U.S. Department of Energy's 1980 estimate of Montana's proven reserves is about 1,321 bcf.

Natural gas sales in Montana were about 49 bcf in 1981, a 12 percent decrease from 1980 sales. Sales to residential and commercial customers amounted to 64 percent of the total; industrial and other customers purchased the rest. Montana Power Company (MPC) accounts for roughly two-thirds of Montana's total natural gas sales. MPC

markets gas in the western two-thirds of Montana. Montana-Dakota Utilities (MDU) accounts for the remainder of Montana sales and sells in the eastern third of the state.

MPC imports approximately 50 percent of its natural gas supply from Canada and gets the rest from Montana sources. The proportion of gas obtained from Canada is likely to be reduced in future years since MPC is negotiating the sale of most of its contracted supply of Canadian gas. MPC is in a surplus situation because of a significant downturn in gas sales, from 56 bcf in 1973 to 33 bcf in 1981. Following the sale, MPC intends to rely to a greater extent on gas supplies from Montana and neighboring states.

MDU sells about 17 bcf of gas annually in Montana; 45 percent of this total is produced in Montana and the remainder is produced in North Dakota and Wyoming. Although MDU has a standby curtailment plan, at present all customers are receiving 100 percent of their requirements. Under the provisions of the curtailment plan, MDU does have a limitation on new connections. The Federal Energy Regulatory Commission (FERC) approved a revision in February 1982 that now allows the connection of a total of 50 new large commercial and industrial customers per year in addition to the 7,500 residential and small commercial customer additions authorized in January 1980, provided that reserve additions justify such new connections. Systemwide customer additions are now less than 5,000 per year. MDU added a net of 118 bcf of reserves in 1981 and foresees continued success in adding new reserves to assure an adequate supply for its system in the future.

Because of its success in acquiring new reserves (a total of 430 bcf in 1979, 1980, and 1981), MDU received FERC authorization to make limited term off-system sales of up to 20.5 bcf per year to Colorado Interstate Gas Company and to MIGC, Inc. Deliveries began in March 1982 and are projected to continue for at least a five-year period.

The Natural Gas Policy Act of 1978 initiated the phased-in decontrol of the price of new natural gas (gas from wells that have come into production since 1977), scheduled to be completed by 1985. The rise in price that has taken place in response to the gradual lifting of price ceilings has both reduced demand and increased gas exploration and supply. The Natural Gas Policy Act affects both MPC and MDU, and therefore Montana, to the extent that they rely on domestic sources of gas.

Natural gas exploration in Montana is increasing. There is considerable interest in the Overthrust Belt and Williston Basin areas. (Further discussion of this exploration is presented in section 11.5.)

2.4. ELECTRICITY

Total installed electrical generating capacity in Montana is 3,175 megawatts, of which 2,117 megawatts is hydroelectric generation and 1,058 megawatts is thermal electric generation. Coal-fired units provide 890 megawatts of the thermal electric generating capacity; oil or natural gas fired units provide another 154 megawatts. The remaining 14 megawatts of thermal electric capacity comes from the St. Regis Lumber Company in Libby; the power generated at this facility by burning wood and wood waste products is used to meet in-plant power requirements.

Federal agencies such as the Bureau of Indian Affairs, the Bureau of Reclamation, and the U.S. Army Corps of Engineers, either independently or through the Bonneville Power Administration (BPA) or BPA's eastern Montana counterpart, the Western Area Power Administration (WAPA), control 1,190 megawatts (56 percent) of Montana's hydroelectric generating capacity. In contrast, all of Montana's thermal electric generating capacity is privately owned.

In a typical water year, expected hydroelectric generation is 1,317 average megawatts, or 11.5 billion kWh. (One average megawatt is equal to 8.76 million kWh.) During a critical water year, which is defined for planning purposes as a year when the river flows would match the lowest flows on record, a statewide drought would drop hydroelectric generation to 972 average megawatts (8.5 billion kWh). Since the average output of the state's thermal electric generators is 730 average megawatts (6.4 billion kWh), only 1,702 average megawatts (14.9 billion kWh) would be generated in a critical water year. This is about 3 billion kWh less than the 2,047 average megawatts (17.9 billion kWh) which would be generated in a typical water year.

Net electric power generation is shown in table II-3. In 1981 power plants in Montana generated 16.7 billion kWh of electricity, 68 percent of which was hydroelectric power and 30 percent of which was thermal electric power from coal-fired generators. In 1981 Montana consumed about two-thirds as much electricity as was generated instate; the state was, thus, a net exporter of about 5.5 billion kWh to out-of-state utilities.

TABLE II-3
NET ELECTRIC POWER GENERATION

(megawatt-hours)

	1977	1978	1979	1980	1981
Montana-Dakota Utilities	327,142	318,329	320,604	306,992	202,857
Montana Light and Power	61,045	73,148	66,090	34,609	61,631
Montana Power Company	5,891,897	6,492,873	6,557,915	6,436,142	6,421,750
Pacific Power and Light	28,451	30,515	27,517	26,616	30,919
Puget Sound Power and Light	1,723,586	1,865,105	1,857,615	2,043,369	2,086,409
Washington Water Power	1,137,223	2,043,985	1,737,581	1,716,749	1,755,918
U.S. Government Facilities					
Bonneville Power Administration[1]	2,423,933	2,787,832	2,598,518	2,474,147	3,540,179
Bureau of Indian Affairs[2]	1,780	2,535	2,195	2,187	2,301
Western Area Power Administration[3]	1,874,557	3,112,402	2,585,806	2,544,491	2,588,287
TOTAL	13,469,614	16,726,724	15,753,841	15,585,302	16,690,252

[1] Hungry Horse, Libby

[2] Flathead Irrigation Project

[3] Canyon Ferry, Fort Peck, Yellowtail

SOURCE: Energy Division, DNRC.

PROSPECTIVE ENERGY DEVELOPMENT IN MONTANA

A wide range of major energy development projects, including coal-related developments, pipelines, hydroelectric facilities, and electric transmission lines, are presently pending in Montana. A number of the projects have been applied for under specific state or federal laws, while others are in the early planning stages and have not yet been formally proposed. The status of each project is noted individually in the following sections.

In addition to the proposals for large-scale facilities for generating electricity from traditional energy sources, this chapter includes a discussion of the development of alternative sources of energy in Montana.

3.1. FOSSIL ENERGY

3.1.1. Potential New Coal Mines

Table III-1 lists potential new coal mines in Montana. All mine permit applications are processed by the Montana Department of State Lands in accordance with the Montana Strip and Underground Mine Reclamation Act (see section 4.1.1.5.), the federal Surface Mining Control and Reclamation Act (see section 7.5.7.1.), and other applicable state and federal laws.

TABLE III-1
POTENTIAL NEW COAL MINES IN MONTANA

	Estimated Maximum Production (million tons per year[1])											
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Expected Mines[2]												
Consol CX Ranch	-	-	-	-	3.0	5.0	8.0	8.0	8.0	8.0	8.0	8.0
Montco	-	-	1.0	2.0	4.0	6.0	6.0	6.0	9.0	12.0	12.0	12.0
KME Wolf Mtn.[3]	-	-	-	-	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Shell Youngs Creek[4]	-	-	-	-	-	2.0	5.0	8.0	8.0	8.0	8.0	8.0
TOTAL	-	-	1.0	2.0	10.0	16.0	22.0	25.0	28.0	31.0	31.0	31.0
Possible Mines[5]												
Bear Tooth	-	-	-	-	-	0.3	0.5	1.5	1.5	2.0	2.0	2.0
Northern Resources[6]	-	-	-	-	0.3	1.0	2.0	3.0	4.0	5.0	6.0	6.0
WECo Dominy	-	-	-	-	-	-	-	1.0	2.5	4.0	4.0	4.0
TOTAL	-	-	-	-	0.3	1.3	2.5	5.5	8.0	11.0	12.0	12.0
Other Mentioned Mines[7]												
Amoco	-	-	-	-	-	-	-	0.5	2.0	4.0	8.0	10.0
Cook Mountain[8]	-	-	-	-	-	-	-	-	3.0	6.0	10.0	10.0
Northern Minerals	-	-	-	-	-	-	-	-	-	3.0	8.0	13.0
Northern Resources	-	-	-	-	-	-	-	-	-	2.0	10.0	10.0
Otter Creek[9]	-	-	-	-	-	-	3.0	5.0	5.0	5.0	5.0	5.0
Tenneco[9]	-	-	-	-	-	-	-	-	-	2.0	13.5	13.5
Wesco	-	-	-	-	-	-	-	-	-	2.0	10.0	12.0
TOTAL	-	-	-	-	-	-	3.0	5.5	10.0	24.0	64.5	73.5
GRAND TOTAL	-	-	1.0	2.0	10.3	17.3	27.5	36.0	46.0	66.0	107.5	116.5

Mines typically do not reach maximum rates of production until the third or fourth year of operation.
Expected mines are known extensions of existing mines or have permit applications in progress.
Formerly PKS CX Ranch.
This mine would be on the Crow Indian Reservation.
Possible mines are those with a resource base that would support the production level, although some of the later mines would need a lease renewal.
Assumes that Basin Electric locates in Circle.
Other mentioned mines are those that would require renewed state, federal, or private leasing. Many of these mines will not be developed unless a major synthetic fuels production effort occurs.
Assumes that the construction of the rail line into the Montco site results in development of this site.
This mine-gasification complex would straddle the Montana-North Dakota border and possibly involve parts of both Dawson and Wibaux counties.

SOURCE: Montana Department of State Lands, August 1982

3.1.2. Coal-Fired Electric Generation

3.1.2.1. Basin Electric Power Cooperative

Basin Electric Power Cooperative, a North Dakota-based utility, has been conducting preliminary site studies since 1979 for two 500-megawatt coal-fired power plants known as the Sunrise Project. The Circle, Montana, area is one of the three preferred locations for the power plants. The other two preferred locations are in Wyoming.

Basin Electric is investigating potential coal and water supplies for those areas under consideration. In the spring of 1981, Basin announced that it had obtained an option to purchase property northwest of Sheridan, Wyoming, for developing a water supply. Basin also planned to install air monitoring equipment at the two Wyoming sites. However, in the fall of 1981, revised load growth projections forced a reevaluation of expenditures for the Sunrise Project; as a result, air monitoring was not initiated. Basin has not yet applied for a water right permit in Montana. All three preferred sites are near coal supplies. The two power plants would require 6 to 12 million tons of coal per year, depending on the quality of the coal used.

In its 1983 long-range plan filed with DNRC, Basin Electric indicated that construction of the power plants and associated transmission lines would tentatively begin as early as 1989 and be completed in 1993. However, because of the uncertain economic situation and revised estimates of future electric power needs, these dates could be delayed.

3.1.2.2. Crow Tribe

In 1980 the Crow Tribe received a $750,000 grant from the U.S. Department of Energy to study the feasibility of building a 1,000-megawatt power plant complex on the Crow Reservation. The study was completed in the fall of 1981. The proposed project would consist of two 500-megawatt coal-fired power plants that would burn approximately 15 million tons of coal annually. Although the coal might initially come from a proposed Shell Oil Company mine or the existing Westmoreland Resources mine, the tribe plans to eventually use coal from a mine owned and operated by the tribe.

The power plants would consume approximately 5,000 acre-feet of water per year. This water would come from either the Bighorn River or from Bighorn Lake behind Yellowtail Dam. More than 1,300 people would be employed during the peak of construction, and 379 workers would be employed permanently after construction is completed. The Crow Tribe hopes to build the plants by 1991.

The Northern Cheyenne Tribe has expressed concern about the proposed power plants since its reservation, which borders the Crow Reservation on the east, is protected by a federal Class I air designation, which allows only small incremental increases in air pollutants. The feasibility study identified several sites on the Crow Reservation that would not violate the Class I restrictions.

In January 1982, the Crow Tribal Council decided to prepare a management plan for the proposed project. The tribe also is in the process of trying to interest several utilities to help finance the project and to purchase power from the tribe.

3.1.2.3. Montana Power Company

The Montana Power Company (MPC) proposes to construct a new 350-megawatt coal-fired power plant in an area about 9 miles east of Great Falls near Salem, Montana. The Salem Project, formerly known as Resource 89, would go into commercial operation in 1996 under MPC's "most likely" forecast. When the Salem site was first announced by MPC in February 1981, the utility estimated that the plant would come on line in 1989. However, MPC's reevaluations of future load requirements have caused the plant to be delayed. Actual construction will take about four years. The Salem site could accommodate a second plant of the same capacity at a later date.

The proposed plant would require approximately 19 miles of 230-kilovolt transmission lines. The lines would interconnect with the present MPC transmission system, which was built to carry power from MPC dams on the Missouri River.

Coal for the Salem Project (approximately 1 to 1.5 million tons per year) would be obtained from suppliers in eastern or central Montana and would be delivered to the site by rail. Water for the plant would be drawn from the Morony Dam reservoir on the Missouri River if MPC obtains the necessary water use permit from the state. If water rights are not granted, MPC will arrange to purchase or contract for the use of an existing water right. A total of 1,000 workers will be employed during the peak of construction; 160 workers will be required to operate the plant.

MPC has filed an application for the project with DNRC, as required by the Major Facility Siting Act (MFSA). The application is undergoing formal review. When the application is accepted as complete by DNRC, the environmental impact statement process will begin.

In April 1982, MPC filed a request for a waiver of the alternative site study required by the MFSA. This request was based on a new provision in the MFSA passed by the 1981 Montana Legislature that states that when a facility is proposed to be constructed in a county that has experienced a severe loss of employment because of a plant closure, the alternative site study requirement can be waived. The Salem site met this criteria because of the recent loss of jobs that occurred in Cascade County as a result of the Anaconda refinery closing. The Board of Natural Resources and Conservation heard testimony during the summer of 1982 and granted MPC's request in August.

3.1.3. Coal Gasification

3.1.3.1. Crow Tribe

The Crow Tribe received a $2.7 million grant in 1980 from the U.S. Department of Energy to study the feasibility of building a coal gasification plant on its southeastern Montana reservation. The study, initiated in October 1981 and completed in September 1982, was coordinated by the Council of Energy Resource Tribes (see section 6.1.).

A plant capable of producing 125 million cubic feet of synthetic gas per day, with the potential for eventual expansion to 250 million cubic feet, was used as a theoretical model for the study. A 125 million-cubic-foot facility would require about 5 million tons of coal per year and approximately 7,500 acre-feet of water per year. Two companies involved with developing Crow coal—Shell Oil Company and Westmoreland Resources—provided information on coal reserves for the plant. Water for the proposed facility probably would be drawn from Bighorn Lake behind Yellowtail Dam.

A peak labor force of about 3,500 workers was projected for plant construction. A possible source of power for the synthetic fuels plant would be from a new coal-fired generating facility that has been proposed for the reservation. The feasibility of constructing this facility also is being studied by the tribe (see section 3.1.2.2.).

A number of possible sites for the plant were eliminated during the feasibility study because they would have caused air degradation on the neighboring Northern Cheyenne Reservation, which has been designated as a Class I air quality area under the federal Clean Air Act. Three sites that could meet the Class I standards eventually were selected.

The study concluded that although the synfuels project is both technically and environmentally feasible, it is not economically feasible in the current energy market, even if the tribe could secure price and loan guarantees from the U.S. Synthetic Fuels Corporation. Project proponents, however, have stated that the project may become feasible by the end of the decade.

3.1.3.2. Mobil Oil Corporation

The Mining and Coal Division of Mobil Oil Corporation is evaluating the suitability of a number of sites in the Rocky Mountain and Great Plains regions for synthetic fuels development. One of the locations currently under study is in Dawson County, Montana. Mobil's plans, which are very preliminary, describe a facility that would produce 40,000 barrels of high-octane, unleaded gasoline per day. This fuel would be shipped to the Chicago area where it then would be distributed through existing supply and distribution channels. A plant of this size would use approximately 14 million tons of locally strip-mined coal per year. Mobil presently owns or leases about 8,240 acres of land in Dawson County which contain an estimated 395 million tons of strippable coal. Water for the synthetic fuels plant would be drawn from the Yellowstone River. An application for beneficial use of Yellowstone River water, requesting a diversion of 400 cubic feet per second (cfs) up to a maximum of 35,000 acre-feet per year during high flows, has been submitted to DNRC.

Mobil estimates that it would take approximately 11 years to proceed from initial site selection and study to full operation. Because of the tentative nature of Mobil's plans, no time frame for permitting or construction has been proposed.

3.1.3.3. Tenneco

Tenneco Coal Gasification Company is proceeding with plans to develop a coal gasification plant in Wibaux County or Dawson County in eastern Montana. Tenneco's 1983 long-range plan added another alternative site 8 miles south of Beach, North Dakota. The company's preferred location for the plant is approximately 5 miles southeast of Wibaux. The plant would use 13.5 million tons of lignite coal per year to produce 280 million cubic feet of synthetic natural gas per day; the Wibaux plant site would allow mine-mouth operation of the plant. Tenneco holds coal leases for approximately 800 million tons of privately owned coal in the area, as well as surface mining agreements over approximately 500 million tons of federal coal. The synthetic gas produced would be transported via a pipeline that would connect the plant with the Northern Border Pipeline in North Dakota or via a new pipeline from the plant to Joliet, Illinois.

The synfuels plant would require an annual water supply of about 10,000 acre-feet. Intake Water Company, a subsidiary of Tenneco, has water rights for 80,000 acre-feet per year from the Yellowstone River. The Yellowstone River Compact, however, precludes the transfer of water out of the Yellowstone River Basin without the consent of Montana, Wyoming, and North Dakota. This consent has not been given for the transfer required to deliver Yellowstone River water to the plant site at Wibaux. Tenneco failed to get a proposal passed during the 1979 and 1981 sessions of the Montana Legislature that would have allowed diversion of water from the Yellowstone Basin for the synfuels plant and other uses. The U.S. Bureau of Reclamation released a draft environmental impact statement on the proposed diversion in December 1982. The final EIS is scheduled to be completed in late summer of 1983.

Intake also has applied for a water use permit for 6,800 acre-feet per year on Beaver Creek near the Montana-North Dakota border. The creek would be a supplemental source of water for the Wibaux plant. An environmental assessment of the proposed impoundment of Beaver Creek is being prepared by Intake in cooperation with DNRC; this assessment is scheduled for completion in 1984.

Tenneco plans to evaluate the operation of its Great Plains Coal Gasification Project in North Dakota, the country's first large-scale synthetic natural gas plant, before deciding whether to proceed with construction plans for the Wibaux plant. Tenneco is the major partner

in the Great Plains Project. If project planning continues, and if the necessary permits are secured, construction of the plant could start by 1988 and the plant could begin producing in 1991. However, delays in acquiring funding for the project and in resolving the question of interbasin transfer of water could push this date back several years.

3.1.3.4. Wesco Resources, Inc.

Wesco Resources, Inc., headquartered in Billings, Montana, and Washington Energy Company of Seattle, Washington, are interested in producing synthetic natural gas from McCone County coal. Before proceeding with development plans, however, the companies must determine whether they will have: 1) adequate funding for a feasibility study; 2) access to Fort Peck water; and 3) an assurance of an adequate coal supply. Wesco is working on consolidating the coal resource in the Circle East (Redwater) area of eastern Montana and has negotiated with Burlington Northern for coal supplies. Wesco also has participated in the federal Fort Union coal lease evaluation process and is monitoring the proposed exchange (see following section) of Burlington Northern and federal coal in the Circle West area.

Because of the tentative nature of Wesco's plans, it is not possible to predict when, or if, the company will file an application under the Major Facility Siting Act.

3.1.4. Other Coal Conversion

3.1.4.1. Dreyer Bros., Inc.

Dreyer Bros., Inc., a wholly owned subsidiary of Meridian Land and Minerals Company, which is, in turn, a wholly owned subsidiary of Burlington Northern, Inc., is continuing to pursue the development of a coal strip mine and possible synthetic fuels plant in McCone County, a project known as the Circle West project.

As originally proposed in 1974, the Circle West plan consisted of developing a coal strip mine on the Dreyer Bros. properties and a plant that would manufacture ammonia fertilizer, methanol, and synthetic diesel fuel. More recent long-range plans, filed with DNRC, conclude that a plant that would produce methanol (methyl alcohol) for use as engine fuel would be a more viable option.

In 1974 Dreyer Bros. filed an application with DNRC for a permit to use water from the Fort Peck Reservoir; preliminary engineering studies on water supply and plant design were completed in 1976. DNRC has conducted environmental baseline studies in the proposed project area over the past eight years. The wildlife and vegetation portions of the baseline studies have been completed; detailed engineering and environmental studies have been postponed.

In the summer of 1982, a private consulting firm was hired by Dreyer Bros. to gather baseline data on lands that Burlington Northern is exchanging with the Bureau of Land Management (BLM). This exchange will eliminate the checkerboard ownership patterns now exhibited among the federal government and the Meridian Land and Minerals Company's coal holdings. The result will be two consolidated coal tracts, one owned by the federal government and one owned by Meridian. In December 1982, the BLM released an environmental assessment concerning the proposed exchange (see section 7.5.4.). The BLM approved the exchange in April 1983.

Until such time as decisions on the availability of water for the project and the type of fuel to be produced are made, the time schedule for the Circle West project will be indefinite.

3.1.4.2. Farmers Potash Company

Farmers Potash Company, a joint venture of Burlington Northern, Inc. and CF Industries, Inc., has submitted long-range plans to DNRC for the coal-burning portion of a proposed potash (potassium chloride) fertilizer project in Daniels County. The department was first advised of this project in 1976 when water use applications for up to 7,000 acre-feet per year from the Poplar River and for up to 7,500 acre-feet per year from Beaver Creek (a tributary of Big Muddy Creek, Missouri River) were filed.

Other steps toward development have included leasing a potash reserve, drilling an exploratory well, and conducting a preliminary feasibility study. In its 1983 long-range plan, the company stated that the economic viability of its potash fertilizer project had not yet been established. The project is still in the early planning stage and no schedules have been proposed for constructing or operating the project.

3.1.4.3. Utah International, Inc.

Utah International, Inc. (UI) has options to lease and purchase agreements for approximately 60,000 acres containing at least 500 million tons of strippable coal known as the Moorhead deposit in Powder River County. This coal is almost entirely federally owned. In 1979 UI informed DNRC that the deposit could be"sufficient for the requirements of several gasification plants," each with a 250 million cubic feet per day capacity, if UI is successful in acquiring water and coal supplies. An alternative use would be to build a mine-mouth electrical generating facility.

UI filed for a water right from DNRC in 1973, with plans to divert a portion of Montana's unallocated flow from the Powder River at a point in northern Wyoming. In a suit against DNRC and UI, Intake Water Company has challenged UI's filing date. The Montana Supreme Court determined that DNRC was correct in fixing UI's application date as being filed prior to that of Intake's. Subsequently, the U.S. Supreme Court declined to review the Montana Supreme Court's determination. UI has challenged the Board of Natural Resources' December 1978 water reservation orders concerning the Powder River. UI disputes the Montana law that provides that water reservations are a preferred use over the right to appropriate water pursuant to a permit, the applications for which were filed

before the reservations were granted but on which the board had not taken action prior to issuing the orders.

UI stated in its 1982 long-range plan that, because of a slowdown in the national synthetic fuels program, a more probable use of the Moorhead coal would be for a mine-mouth electric generating plant rather than a coal gasification facility. Because of the uncertainties surrounding the timing of market requirements for new electric generating capacity, as well as the acquisition of coal and water, it is difficult to predict the timing of construction of a coal conversion facility. Under the most favorable circumstances, the earliest that plant construction could commence would be around 1990, leading to commercial production sometime between 1992 and 1994.

3.1.5. Crude Oil Pipelines

3.1.5.1. Northern Tier Pipeline Company

(**Note:** On April 20, 1983, Northern Tier Pipeline Company announced that it had cancelled plans to build a crude oil pipeline from the coast of Washington to Minnesota. The company's decision ended almost 8 years of preliminary engineering and legal groundwork for the pipeline. In cancelling the project, the company stated that "after careful study and evaluation of the prospects for obtaining a permit, we have concluded that we cannot justify the time and expense required for a new permit application." Northern Tier's final permit application to build the pipeline was rejected last year by Washington Governor John Spellman. The following section was written before Northern Tier had abandoned the pipeline project; it is presented here to describe how the project evolved and some of the circumstances which led to Northern Tier's decision to cancel the project.)

Since 1975, the Northern Tier Pipeline Company has been seeking approval to construct new oil tanker berthing facilities at Port Angeles, Washington, with related transfer and on-shore oil storage and a 1,550-mile pipeline system crossing the states of Washington, Idaho, Montana, and North Dakota, to terminate at Clearbrook, Minnesota. The system would deliver oil from a variety of sources to existing refineries in the Northern Tier states. The pipeline would have an initial capacity of 709,000 barrels per day, which would eventually be increased to a maximum of 933,000 barrels per day.

The Montana portion of the project would include approximately 630 miles of buried steel pipe, eight pump stations, and a maximum of 75 feet of permanent right of way. In addition, two delivery facilities would connect the proposed pipeline to the existing Glacier Pipeline near Harlowton and the Western Crude Oil Pipeline near Richey. An estimated construction workforce of 440 people would be needed in each of five sections of the line in Montana, with additional workers required for construction of the pump stations and delivery facilities.

DNRC released Montana's draft environmental impact statement (EIS) on the proposed Northern Tier Pipeline in October 1979. The draft EIS addressed alternatives to the proposed action, including construction of other crude oil transportation systems and nonconstruction alternatives. Of the construction alternatives, the department concluded that the Northern Tier Pipeline would provide the lowest delivery cost. Of the nonconstruction alternatives, reallocation of crude oil supplies was found to be the most economical.

The final EIS, issued in April 1980, contained three recommendations. One of the recommendations was for a route similar to that proposed by Northern Tier, which Northern Tier eventually concurred with almost entirely. A second recommendation was to create an Interagency Pipeline Task Force (IPTF) to coordinate the activities of state agencies by serving as a point of contact for Northern Tier, federal, state, and local agencies, and the public. The IPTF was created in July 1980, but was disbanded in early 1982 when the governor of Washington denied Northern Tier's site certificate. The structure of the IPTF was left in place in the event that construction of the Northern Tier Pipeline might eventually proceed. The third state recommendation was that Northern Tier should compensate for adverse impacts associated with the pipeline.

The federal government's final EIS was released by the Bureau of Land Management (BLM) in August 1979. The Secretary of the Interior recommended to President Carter and Carter agreed that Northern Tier's proposal be expedited and approved if it received the needed private financing. The Reagan administration also has supported the proposed Northern Tier pipeline.

Of the five states that would be crossed by the pipeline, Idaho, North Dakota, and Minnesota have given state approval, although Minnesota's approval is also conditioned on private financing. Montana has not acted on its right-of-way application. In April 1982, Northern Tier's application for a siting certificate in the state of Washington was denied by Governor John Spellman because of concern over the environmental risks posed by the proposed route under Puget Sound and the possibility of tanker-related explosions and fires at Port Angeles.

Northern Tier now has the option of changing the route and oilport location and submitting a revised application to the Washington Energy Facility Site Evaluation Council. The company has indicated that it may resubmit its application in early 1983. Northern Tier has initiated a series of meetings with state and local officials in Washington in an attempt to resolve some of the questions raised in its first application. In August 1982, the council agreed to commission a study of pipeline routes that would skirt Puget Sound instead of crossing under it as was originally proposed; Northern Tier is financing the study. Northern Tier also has initiated a new study to determine whether the project is still economically feasible. Northern Tier has not yet received private financing for the project.

3.1.6. Natural Gas Pipelines

3.1.6.1. Fuel Resources Development Company

Fuel Resources Development Company (Fuelco), a Denver-based independent natural gas exploration and drilling company, has proposed, since 1978, to construct a natural gas pipeline in the Missouri River Breaks area. The pipeline would transport natural gas from a company-owned gas field south of the river to customers in Great Falls. The pipeline would tie into existing Montana Power Company pipelines.

The 17-mile-long pipeline would be built in an area that is presently roadless, and would cross the Missouri River about two miles downstream from the Stafford Ferry. Concerns have been expressed that: 1) this location is a paddlefish spawning area and construction would have adverse impacts on the species' reproductive success; and 2) energy development in this roadless area could encourage further exploration, thus destroying the wilderness character of the area.

In October 1980, the U.S. Bureau of Land Management (BLM) rejected Fuelco's proposed pipeline route on environmental grounds. Fuelco appealed the BLM decision to the Interior Board of Land Appeals in Washington, D.C., and in September 1982, BLM reversed its earlier decision and granted the permit. Fuelco had to agree to a number of stipulations, including installation of an 8-inch pipeline instead of a 4-inch pipeline as originally proposed. The larger pipeline will reduce the likelihood that additional natural gas pipelines will have to be built in the area in the future. BLM and Fuelco also have worked on ways to construct the pipeline that will reduce the project's impact on the area's wilderness character. Fuelco now plans to build the pipeline in the fall of 1983.

3.1.7. Coal Slurry Pipelines

3.1.7.1. Powder River Pipeline, Inc.

Powder River Pipeline, Inc., of Billings proposed in 1981 to develop a coal slurry pipeline that would transport coal from the Powder River Basin in southeastern Montana to markets in the Midwest and the Great Lakes states. The project proposal, which is in the very early stages of development, states that the pipeline would transport 25 to 36 million tons of coal per year, primarily to electric utilities and large industrial users. The company also is exploring the possibility of shipping coal through the port at Superior, Wisconsin, for export to foreign markets. The pipeline would be approximately 1,300 miles long, depending on its final routing, with pump stations every 70 to 100 miles. The company has stated that the major challenges facing development of the pipeline are acquiring water and the right of eminent domain to cross railroad rights of way.

The pipeline would require coal and water, which would be mixed in a slurry preparation plant and then started through the pipeline by a pump station located at the plant. Storage facilities and a coal separation plant would be needed at the point of destination.

Powder River Pipeline, Inc. estimates that approximately 25,000 acre-feet of water would be needed each year to move 35 million tons of coal. One alternative being investigated is to divert Missouri River water at the Fort Peck, Garrison, or Oahe reservoirs. The company has further suggested the possibility of using a water return line so that water that has made its trip through the line in slurry form could be reused. The possibility of using treated waste water from the Black Hills area of South Dakota also is being considered.

The company has developed a four-phase program to pursue development of the pipeline. Phase I, which was completed in the fall of 1982, includes an environmental review and an engineering and economic analysis. Phase II will be a continuation of project planning if the results of Phase I indicate that the pipeline appears feasible. As scheduled, Phase II should be completed in July 1984. Phases III and IV would involve construction and operation of the project, which is targeted for completion in January 1986 with an estimated total cost of $2.5 to $3 billion.

3.1.7.2. Pacific Hydrocarbon Energy Company

In the summer of 1981, the Pacific Hydrocarbon Energy Company (PHECOM) of Seattle, Washington, announced plans for an oil-coal slurry pipeline from Miles City, Montana, to Anacortes, Washington, along the route of the proposed Northern Tier Pipeline. The pipeline would transport an oil-coal mixture that could be used by Pacific Coast utilities to fuel power plants. PHECOM has stated that the oil-coal mixture would create a high Btu fuel with almost twice the energy value of the oil. The mixture could be burned in oil furnaces or dried and burned like regular coal. A combustion test has been performed to demonstrate the acceptability of a coal-oil mixture to the utilities; other tests are planned.

According to a project summary submitted to the U.S. Synthetic Fuels Corporation (SFC), the process would require approximately 200,000 barrels of heavy crude oil (Alaskan North Slope and/or Kern River) and about 50,000 tons of subbituminous/lignite coal per day. PHECOM plans to use coal from a new mine in the Miles City-Glendive area; Western Energy Company has been mentioned as a possible operator of the mine.

The projected workforce in Miles City would be 1,200 workers at the peak of construction; 400 workers would be permanently employed. Additional workers would be required to construct the pipeline and to operate the oil processing facility in Anacortes. When the project was first proposed, PHECOM predicted that the pipeline could begin transporting the oil-coal mixture as early as 1986.

The future of the PHECOM proposal depends on several factors including: resolving the remaining technological problems associated with burning the new oil-coal mixture; obtaining purchase commitments from

West Coast utilities; receiving the necessary permits from local, state, and federal agencies; and securing financing for the project. PHECOM has requested loan and price guarantees from the SFC; however, the SFC has indicated that coal-oil mixture projects will not be eligible for the next round of funding, scheduled for early 1983.

3.2. HYDROELECTRIC FACILITIES

3.2.1. Facility Expansions

3.2.1.1. Canyon Ferry Dam

The potential for generating additional power at Canyon Ferry Dam and for converting the existing 50-megawatt facility to a peaking power operation was initially identified in a 1976 U.S. Bureau of Reclamation (USBR) publication entitled the *Western Energy Expansion Study*. The USBR later modified the original plan of operation from peaking power production to a combination of baseload and peaking power. The USBR completed appraisal studies of the proposal in 1981.

USBR's appraisal-level study was conducted to determine the technical and economic feasibility of the proposed project. Although the USBR study concluded that the project would be economically feasible, USBR officials announced, in December 1982, that they have cancelled plans for the project because of the lack of public support. If the Canyon Ferry project is ever revived, congressional authorization would be required to continue with feasibility-level studies and to prepare an environmental impact statement. The project would also require congressional authorization for construction.

Concern had been expressed by area residents over the daily water level fluctuations downstream from Canyon Ferry that would result from a peaking power operation. In June 1980, USBR ran a test to see how large those fluctuations might be. Initial tests indicated that fluctuations from the peaking operation might be in the range of 1.8 to 2.0 feet. Further tests in 1981 indicated that a 50- or 90-megawatt power plant could be added to the existing facility at Canyon Ferry Dam and the fluctuations could be kept under 1 foot.

The Montana Department of Fish, Wildlife and Parks has studied the impacts that a peaking power operation at Canyon Ferry would have on the populations, spawning areas, and food supplies of fish downstream from the dam. The study began in the fall of 1981 and the final report is scheduled for release in 1983.

3.2.1.2. Fort Peck Dam

The U.S. Army Corps of Engineers has investigated the feasibility of installing additional hydropower facilities at Fort Peck Dam and operating the dam as a peaking power facility.

The study specifically investigated the potential addition of 185 megawatts of capacity and a reregulation dam at an investment cost of $157 million. The reregulation facility would reduce the downstream fluctuations that result from daily peaking power operations. About 200 acres of terrestrial habitat, including 50 acres of island habitat, would be lost due to inundation, erosion, or bank slope adjustment in transforming 8 miles of river to a reregulation reservoir. About 643 acres of existing dredge-cut lakes would be isolated, blocking movement of river fish into the lakes. Fish populations would be virtually eliminated in the reach of the Missouri occupied by the reregulation reservoir.

The investigation was conducted as part of the *Review Report for Water Resource Development on the Missouri River,* which was released by the U.S. Army Corps of Engineers in 1977. In 1980 the Secretary of the Army returned the report to the Corps of Engineers for additional studies.

The corps' Omaha District is now evaluating other methods of generating additional hydropower at Fort Peck Dam, such as alternative reregulation dam concepts and locations that would lessen environmental impacts. A preliminary evaluation of alternatives will be conducted during 1983, and followup feasibility studies will evaluate in detail the alternatives that have been identified. If it appears, after further analysis, that the project is in the public interest, a recommendation will be made to Congress to authorize the proposed construction. An interim report on additional hydropower needs and other water resource problems in Montana is scheduled for completion in 1985.

The Montana Department of Fish, Wildlife and Parks and the U.S. Fish and Wildlife Service (FWS) are conducting a joint evaluation of the proposed reregulation dam. FWS is the lead agency and is responsible for writing the report, presently scheduled to be finished in 1984. The data-gathering phase will be completed in October 1983 and will include information on instream flow requirements, habitat impacts, and use of the area by fishermen.

3.2.1.3. Hungry Horse Dam

The U.S. Bureau of Reclamation (USBR) is conducting a feasibility study of the potential for increasing power generation at the existing Hungry Horse Dam on the South Fork of the Flathead River. A report on preliminary findings is scheduled for public distribution in 1983 and a final report outlining the conclusions and recommendations of the study will be released in 1985.

Alternative plans to increase peaking power capacity and average annual generation at the Hungry Horse Dam are being evaluated to determine possible economic,

environmental, and social effects. From these plans, one will be recommended for implementation. Based on a preliminary study completed in 1980, the most promising alternatives include:

1) *an uprating alternative*—with this plan the nameplate rating of existing Hungry Horse generators would be increased from 285 to 385 megawatts by uprating the existing four generators.
2) *an outlet power alternative*—with this plan a new 55-megawatt power plant would be constructed at the existing Hungry Horse Dam outlet works.
3) *an uprate plus outlet power alternative*—with this plan existing power plant units would be uprated and a 55-megawatt power plant at the dam's outlet works would be constructed to provide a total nameplate rating of about 440 megawatts.

A reregulating dam is included with each alternative. This dam, as proposed, would be between 50 and 60 feet high and have a maximum impoundment capacity of 3,000 to 4,500 acre-feet. When full, the reservoir would inundate about 3.4 miles of the South Fork of the Flathead River and 45 acres of forest land along the river.

The Montana Department of Fish, Wildlife and Parks (FWP) has been studying the Kokanee salmon population in the Flathead River Basin since 1979. The study was completed and a report issued in October 1982. The main purpose of this study was to determine what impacts different river flows have had on the salmon population and to determine what minimum and maximum flows are needed to ensure a viable salmon population. Flow recommendations of a 3,500 cubic feet per second (cfs) minimum and a 4,500 cfs maximum in the Flathead River at Columbia Falls for the spawning season (October to December) and a minimum of 3,500 cfs during the incubation season (December to April) were submitted by FWP to the Northwest Power Planning Council at the conclusion of the study.

3.2.1.4. Libby Dam

The U.S. Army Corps of Engineers has proposed to add four new generators to Libby Dam on the Kootenai River and to construct a reregulating dam 10 miles downstream from the present dam. The new generators would increase the installed capacity at the existing dam from 420 megawatts to 840 megawatts, and future operation of the dam would provide peaking power rather than baseload generation. The reregulating dam would reduce water level fluctuations on the Kootenai River that would otherwise result from the new operation.

The proposed addition of further generation at Libby Dam has raised questions about the need for the additional peaking power, the wisdom of inundating 10 more miles of the Kootenai River with the reregulating reservoir, and the impact of the project on the bald eagle, an endangered species.

A lawsuit filed by the Montana Wildlife Federation, the Montana Wilderness Association, and the Libby Rod and Gun Club in 1978 claimed that the project had not been authorized by Congress and that it did not comply with the National Environmental Policy Act. A district court judge found that actual construction of the project did not have congressional authorization and that the Corps of Engineers had not adequately considered alternatives to the project. In 1979 the U.S. Court of Appeals for the 9th Circuit found that the new generators could be installed in Libby Dam, since this dam was authorized, but that all work on the reregulation dam must stop. In 1981 the Corps of Engineers unsuccessfully reappealed the court's decision that they cease work on the reregulation dam. As a result, the costs associated with the reregulation dam have now been dropped from the Corps' budget projections.

In 1981 Congress approved a bill that included $5 million for completion of Unit 5, the first of the four proposed new generators. Construction of units 6, 7, and 8 has been postponed indefinitely since the units could not operate without the reregulation dam. Any additional work on these generators or on the reregulation dam would have to be authorized by Congress.

3.2.1.5. Montana Power Company

The Montana Power Company (MPC) is planning to add to the generating capacity at four of its existing hydroelectric plants. These additions would add a combined total of 143 megawatts of generating capacity, and would produce an average of 65 megawatts under normal flow conditions. The plants are:

1) *Hauser Dam*—existing capacity of 16.5 megawatts; addition of 25 megawatts; new powerhouse on the left abutment; application for Federal Energy Regulatory Commission (FERC) permit expected in 1983; scheduled for commercial operation in 2000.

2) *Ryan Dam*—existing capacity of 60 megawatts; addition of 40 megawatts; new powerhouse adjacent to the existing plant; application for FERC permit filed in June 1982; scheduled for commercial operation in 1993.

3) *Thompson Falls Dam*—existing capacity of 40 megawatts; addition of 50 megawatts; new powerhouse adjacent to the existing plant; application for FERC permit filed in August 1982; scheduled for commercial operation in 1993.

4) *Kerr Dam*—existing capacity of 180 megawatts; addition of 28 megawatts by upgrading existing generating equipment. Since the project is presently in the process of being relicensed, the schedule for expansion is indefinite.

When these additions were first proposed by MPC, the utility expected that they would be ready for commercial operation about 1987 or 1988. However, in November 1982 MPC announced that these projects would be delayed because of revised estimates of future electric power needs.

MPC has filed (or expects to file) applications with FERC for preliminary permits to conduct feasibility studies for these projects. DNRC is currently seeking an opinion from the state attorney general as to whether the state has authority under the Major Facility Siting Act to

evaluate hydroelectric projects that are also regulated by the federal government.

The Montana Department of Fish, Wildlife and Parks (FWP) has been involved in reviewing MPC's study plans and in commenting on MPC's permit applications. FWP has begun fish population studies near Hauser Dam.

3.2.1.6. State-Owned Water Projects

See section 5.10.4.1. for a discussion of DNRC's proposals to install hydroelectric generation at eight state-owned water projects—the Toston, Painted Rocks, Nevada Creek, Cooney, Middle Creek, Ruby, Tongue River, and Deadman's Basin dams.

3.2.1.7. Tiber Dam

In June 1982, a New York firm known as Montana Renewable Resources joined with Liberty County and the town of Chester in submitting an application to the Federal Energy Regulatory Commission (FERC) for a license to operate a hydroelectric facility at Tiber Dam. The"Lake Elwell Hydroelectric Project" would be located at the Tiber Dam on the Marias River. Tiber Dam, which is owned by the U.S. Bureau of Reclamation (USBR), is not currently operated for hydroelectric generation. The project applicants are proposing a nonpeaking type of installation with an 8-megawatt capacity. The project would involve the installation of a new single-unit powerhouse and a 115-kilovolt powerline that would transmit the output to an existing substation owned by the Western Area Power Administration.

The project schedule calls for commercial operation of the power plant by January 1985, subject to the issuance of the FERC license. Project operation will not alter the present or future reservoir operating procedures as established by the USBR and the U.S. Army Corps of Engineers. The USBR has applied to DNRC for a new appropriation of up to 900 cubic feet per second of Marias River flows for hydroelectric development.

Several utility companies have been identified as possible energy purchasers. The Montana Power Company appears to be the most likely purchaser since it serves the area in which the project would be located.

The Montana Department of Fish, Wildlife and Parks is currently conducting an instream flow study at the reservoir to study the impacts of the proposed facility on downstream fishery resources. The study is scheduled for completion in March 1983.

The Milk River Irrigation Districts and the City of Gillette, Wyoming, have filed competing applications for hydroelectric development at Tiber Dam. The irrigation districts have indicated plans for a 12-megawatt facility; the City of Gillette is examining options for a 14-megawatt power plant.

3.2.1.8. Tongue River Dam

The 40-year-old earthen dam on the Tongue River in southeastern Montana has been classified by the U.S. Army Corps of Engineers as a high-hazard dam because of the potential for loss of life and extensive property damage downstream, should the dam fail. Engineering studies contracted by the State of Montana have determined that the dam's spillway is too small to pass the probable maximum flood for the drainage area.

In response to requests from the Montana Legislature, DNRC is studying a number of alternatives for correcting the problem. These include rebuilding the existing dam and spillway; replacing it with a higher dam on the present site, or with a new and higher dam 7 miles downstream; or breaching the existing dam entirely. Each of the alternatives, except for the one that would eliminate the existing dam, provides for a 2- to 7-megawatt hydroelectric generation facility at the site.

The U.S. Bureau of Reclamation, U.S. Bureau of Indian Affairs, and the Northern Cheyenne Tribe are working with DNRC on a feasibility study of those options that involve either raising and rehabilitating the existing facility or replacing it with a new dam downstream. The study is expected to be completed in mid-1985.

3.2.1.9. U.S. Bureau of Reclamation

The U.S. Bureau of Reclamation (USBR) has studied the potential for power generation at the Gibson, Tiber, Clark Canyon, and Yellowtail Afterbay dams.

Gibson Dam, located on the Sun River approximately 5 miles downstream from the confluence of the river's north and south forks, can potentially accommodate an 11-megawatt two-unit power plant. The Sun River Diversion Dam, located 3 miles downstream from Gibson Dam, could accommodate a 1.6-megawatt single-unit power plant if it were constructed in conjunction with the Gibson Dam proposal. The plants would require approximately 21 miles of 69-kilovolt transmission line.

Tiber Dam, located about 19 miles southwest of Chester, Montana, has the potential to accommodate a 12-megawatt power plant. A 72-inch outlet pipe was installed during initial construction of the dam to provide the discharge needed for power generation. The electricity produced could be transported by an existing 115-kilovolt transmission line. (See section 3.2.1.7. for a discussion of other proposals to add power generation at Tiber Dam.)

Appraisal studies were completed in 1981 on the hydropower potentials of the Clark Canyon Dam and the Yellowtail Afterbay Dam. Clark Canyon Dam, located on the Beaverhead River 18 miles southwest of Dillon, Montana, has the potential to accommodate a 3-megawatt powerplant. Power would be transported by an existing 24.9-kilovolt transmission line.

Yellowtail Afterbay Dam is located on the Bighorn River a short distance downstream from Yellowtail Dam. The Afterbay Dam has the potential to accommodate a 10-megawatt powerplant operated as a run-of-the-river plant. Power would be transported through the existing Yellowtail transmission system.

3.2.2. New Facilities

3.2.2.1. Montana Power Company

In the fall of 1981, the Montana Power Company (MPC) received a preliminary permit from the Federal Energy Regulatory Commission (FERC) to conduct a feasibility study for a dam and electrical generating units at Carter, on the Missouri River near Fort Benton. The FERC permit authorizes the company to conduct engineering and environmental studies for the dam until July 1984. MPC has not filed an application under the Major Facility Siting Act (MFSA) for the proposed Carter project. A state attorney general's opinion on the applicability of the MFSA has been requested by DNRC. If the necessary permits are secured, the dam and generating units could be completed by 2000 or 2001.

This facility would be capable of generating 75 to 100 megawatts of power. The reservoir created by the proposed dam would extend approximately 15 miles upstream. The dam would be operated to produce baseload power, not just during periods of peak demand. There would be no reregulating reservoir. The Montana Department of Fish, Wildlife and Parks is assessing the fish and wildlife populations inhabiting the area that would be affected by the proposed project.

MPC also lists Buffalo Rapids, on the Flathead River within the Flathead Indian Reservation, as a possible site for a new dam. This facility would have a tentative capacity of 264 megawatts. Applications for the required permits are currently scheduled to be filed with appropriate agencies in 1985; however, no construction schedule has been outlined.

3.2.2.2. Northern Lights, Inc.

Northern Lights, Inc., an Idaho-based rural electric cooperative, submitted an application to DNRC in April 1981 for a Major Facility Siting Act (MFSA) certificate to allow construction of a hydroelectric facility at Kootenai Falls. The dam would be designed to produce up to 144 megawatts of electricity with an average generating capacity of 58.8 megawatts. The proposed dam would be on the Kootenai River about 26 miles downstream from Libby Dam and 9 miles downstream from the town of Libby. It would be 925 feet long and about 30 feet high. The reservoir created would be approximately 4 miles long. The dam would be the only above-ground part of the generating facility; the powerhouse and all associated developments, except for several tunnel entrances, would be below ground. The water used for generation would be returned to the river channel about .8 miles downstream from the dam.

Seven rural electric cooperatives (Northern Lights, Lincoln, Glacier, Flathead, Missoula, Ravalli, and Vigilante) are participating in the project, as is the Flathead Irrigation and Power Project. The power produced would be distributed to the cooperatives through the Bonneville Power Administration (BPA) grid system.

Northern Lights also applied to the Federal Energy Regulatory Commission (FERC) for a license to construct and operate the Kootenai River hydroelectric project. FERC issued a draft environmental impact statement (EIS) on the project in May 1980 and a final EIS in April 1981. FERC started administrative hearings on the project in August 1982 in Washington, D.C. The State of Montana intervened in the FERC hearing process to assure that the concerns of the state become part of the federal process. A final FERC decision is not expected until 1984.

The DNRC draft EIS, released in July 1982, serves as an addendum to the federal EIS. Some of the major effects on the project area that were identified in the draft EIS are:

Economic benefits—Provision of a maximum of 500 temporary construction jobs lasting up to two years. About 20 permanent positions to operate and maintain the project are planned. The dam would add $6.7 million to the Troy School District's taxable value. The long-term benefits to Lincoln County would be small, amounting to about 1 percent of the total county revenues at the 1979 level.

Consumers' cost of power—Provision of an average of 58.8 megawatts of electricity at a price slightly lower than the power provided by BPA over the estimated 50-year life of the project.

Fisheries—A decline in the high-quality fishery through decreased movement of fish and aquatic invertebrates downstream, reduced water velocity and increased sedimentation levels upstream from the dam, the prevention of upstream movement of fish, turbine mortality to fish, and reduced dissolved oxygen levels in the river due to the loss of the falls as an oxygenator. The project also would replace a blue-ribbon trout stream with reservoir fish habitat.

Wildlife—A decline of wildlife and habitat diversity through loss of riparian vegetation, loss of the harlequin duck population at the dam site, and probable losses in mountain sheep numbers from effects on habitat purchased by the Corps of Engineers to mitigate the effects of Libby Dam.

Recreation and aesthetics—A loss of current recreation and aesthetic resources through inundation of China Rapids, dewatering of the falls and the canyon below the dam, placement of a concrete and steel structure across the river, decreased river-type fishing opportunities, loss of opportunity to view harlequin ducks, and a possible decrease in opportunities to see mountain sheep.

Unique ecosystems—Loss of the last undeveloped waterfall on a major river in the Northwest.

Kutenai Indians—Loss of a sacred area and sources of food that have cultural or religious significance.

History and archaeology—A cumulative loss through construction, inundation, vandalism, and theft of historical and archaeological materials that could be essential to defining the history and prehistory of the Kootenai valley.

Water quality—Loss of water oxygenation provided by the falls, which will probably lead to a reduction in some

species of aquatic organisms important as trout food below the falls.

DNRC also examined some possible alternative energy sources to determine if electrical loads in the project area could be met with power from sources other than the proposed project. These alternatives included the continued purchase of all needed electricity from BPA. DNRC's research indicated that energy conservation measures applied to existing houses and the installation of generators at three existing dams were the only alternatives that would provide electricity at a lower cost than the proposed dam. DNRC also analyzed future energy demand and conducted a cost-benefit analysis of the applicant's supply options.

Public meetings to hear comments on the draft EIS were held by DNRC in Libby, Missoula, and Helena during August 1982. These comments will be incorporated into the final EIS, which also will contain DNRC's recommendations on the project. In January 1983, DNRC and the project applicants agreed that the department would suspend for a year its work on evaluating the Kootenai Falls application. The decision to postpone work on the application was made because of questions arising over whether federal law preempts state authority over the project. DNRC is currently seeking the attorney general's opinion on this issue.

3.2.2.3. U.S. Bureau of Reclamation

The U.S. Bureau of Reclamation (USBR) is continuing to examine the potential for generating power at a number of sites in Montana. Since 1979, USBR has studied potential dam sites between Fort Benton and Morony Dam on the Missouri River. The"Fort Benton Reformulation Study," which included a study of the potential for hydroelectric power development at a site near Carter in Chouteau County, was concluded in 1982. The Montana Power Company has expressed an interest in building a dam and electric generating units at Carter and has received a preliminary permit from the Federal Energy Regulatory Commission to conduct studies at the site (see section 3.2.2.1.).

See section 7.5.6.2. for a description of a 1982 USBR report on potential low-head hydroelectric sites in 17 western states, including 11 sites in Montana.

3.3. NEW ELECTRIC TRANSMISSION FACILITIES

3.3.1. Bonneville Power Administration

3.3.1.1. Flathead Valley Reinforcement

The Bonneville Power Administration (BPA) is proposing to construct a new 230-kilovolt transmission line to reinforce its electrical transmission system in the Flathead Valley, and to increase the reliability of electrical service in this area. One route being considered would bring the line from Hot Springs to the west shore of Flathead Lake near Elmo, then north to the Somers area and across the valley to Columbia Falls. Another potential route would bring the line from the Libby area through the Pleasant Valley and Marion areas to join an existing line west of Kalispell. The line would be 55 to 75 miles long, and most of it would be built on or near existing transmission line rights of way.

In October 1981, BPA began environmental studies of the proposed routes and preparation of a draft environmental impact statement on the project. In February 1982, public meetings were held by BPA to give the public an opportunity to help identify the potential impacts and mitigation measures to be addressed in the EIS. The draft EIS for the proposed project is scheduled for release in early 1983.

During December 1982, DNRC reviewed all materials prepared on the project to date to determine whether the information is sufficient for the Board of Natural Resources and Conservation to eventually find that BPA plans to comply with the Major Facility Siting Act. DNRC will recommend actions BPA should take to remedy any deficiencies in the information.

3.3.1.2. Libby Integration

The Bonneville Power Administration (BPA) is upgrading existing transmission facilities in the Libby area to improve reliability of service to electrical loads in northwestern Montana and northern Idaho. Double-circuit 230-kilovolt lines between Libby and Sandpoint, Idaho, would replace existing Pacific Power and Light and BPA 115-kilovolt powerlines. The lines would be 93 miles long and would primarily be on an existing right of way.

The new transmission lines were originally planned to integrate power into the federal Columbia River Power System from new generators proposed for Libby Dam by the U.S. Army Corps of Engineers. However, lack of congressional authorization for the proposed Libby Reregulating Dam, which would be used to regulate fluctuations in the Kootenai River, will restrict use of additional generating units in Libby Dam as previously planned (see section 3.2.1.4.). A 115-kilovolt transmission line to connect the proposed Libby Reregulating Dam with the upgraded system would be built if the dam is constructed.

The major areas of concern for the individuals and agencies that reviewed BPA's draft environmental impact statement on the proposed transmission lines were the actual need for the project, erosion and water quality problems,

potential impacts on wildlife (primarily bald eagles and bighorn sheep), visual impacts, effects on property values, and BPA's easement rights. BPA has placed a number of restrictions on construction of the lines to minimize these impacts. These restrictions include rerouting the lines in several areas, and planning the timing of construction in the Kootenai Falls area to avoid disturbing wildlife.

The Troy-Bonners Ferry section is scheduled to be completed in 1983. The Troy-Libby section is scheduled for completion in 1984.

3.3.1.3. Colstrip Transmission Lines

In June 1973, Montana Power Company (MPC) and a consortium of four Pacific Northwest utilities applied for a certificate under the state's Major Facility Siting Act (MFSA) to construct two 750-megawatt coal-fired power plants at Colstrip, Montana, and associated transmission facilities. The transmission facilities—two 500-kilovolt lines—would transmit power from Colstrip Units 3 and 4 in southeastern Montana to utility customers in the Pacific Northwest. In 1976, the Montana Board of Natural Resources and Conservation issued a certificate that identified a transmission line corridor with a centerline location subject to later approval. The utility consortium is now constructing the transmission lines between Colstrip and Townsend.

Unable to reach an agreement with the Confederated Salish and Kootenai tribes over a right of way across the reservation, in 1977 MPC asked BPA to construct the western portion of the lines. BPA, which had an existing right of way across the reservation, agreed to take over the project. Based on a corridor study with the U.S. Forest Service and U.S. Bureau of Land Management, BPA selected a route for the lines west of Townsend. However, BPA's preferred route differed from the route approved by the Board of Natural Resources and Conservation.

For a variety of reasons, the Colstrip transmission lines have generated considerable public controversy in western Montana. Concerns have been expressed about the visual impact of the lines and towers, the fairness of compensation for easements on privately owned land, the health effects of the lines, the question of whether the lines would primarily cross public or private lands, and the actual need for the project. As a result of public concern over its proposed corridor, BPA reopened consideration of alternative routes in 1980. A year later, the three federal agencies completed their evaluation of these alternatives for the section of the line between Townsend and Garrison.

BPA has claimed that, as a federal agency, it is not subject to state jurisdiction and that the procedures, regulations, and criteria in the MFSA, therefore, are not applicable to its projects. In March 1982, however, a U.S. District Court ordered BPA to comply with the substantive—but not the procedural—requirements of the MFSA. This decision came a year after the State of Montana sued BPA to require the federal agency to comply with the siting act. In August 1982, the District Court further ruled that although BPA had to comply with the substantive requirements of the MFSA, those requirements were subjective and lacked specific guidelines or criteria which BPA could follow in order to achieve compliance. The ruling allowed BPA to proceed with the Townsend-Garrison section of the powerline as originally proposed.

Construction of the lines between Townsend and Boulder began in August 1982. BPA plans to finish the entire Townsend-Garrison portion of the Colstrip lines by October 1983 to coincide with the startup of Colstrip Unit 3.

In March 1982, BPA issued a draft environmental impact statement that presented alternative routes for the Garrison-Spokane lines. In July 1982, DNRC began its evaluation of those alternatives and the environmental impact statement prepared by BPA for compliance with the substantive standards of the MFSA. The Board of Natural Resources and Conservation held a public hearing to gather testimony on DNRC's draft report in March 1983. Public comments gathered at that hearing were incorporated into a final report that was published in April. BPA issued its final EIS on the Garrison-Spokane Project in March 1983 following the board hearings. Representatives of BPA and DNRC also met to discuss proposed routes for the transmission lines; these meetings resulted in a joint siting recommendation for a preferred route, known as the Taft South Route. The Taft South Route was selected because it would affect fewer people and homes than the other proposed routes, although the potential for adverse impacts to the natural environment was considered to be high. In early May 1983, the Board of Natural Resources and Conservation tentatively approved the Taft South Route, but requested a 45-day moratorium on construction to provide time for BPA and DNRC to study an exact centerline within the approved Taft South corridor that would have the least adverse impact on the surrounding countryside. The board also adopted a number of other conditions for minimizing the environmental impacts of the lines.

The projected completion date for the section of the lines between Garrison and the western Montana substation is October 1985. Colstrip Unit 4 is scheduled to begin commercial operation in July 1985.

The Montana Department of Health and Environmental Sciences (DHES) and the Montana Board of Land Commissioners also have reviewed BPA's proposed transmission line route. DHES is required by law to study the possible air and water quality impacts of the proposed powerline; the Board of Land Commissioners must approve easements across state lands. The Board of Land Commissioners' approval of the Townsend-Garrison section of the line was conditioned on BPA's agreement to develop administrative procedures for making payments in lieu of taxes to local governments along the powerline corridor. Since BPA claims exemption from payments in lieu of taxes, that agreement is contingent on a federal district

court ruling that the BPA has the authority to make such payments.

In another important development, BPA and the State of Montana drafted two Memorandums of Understanding, signed in August 1982, that set forth procedures for cooperation in the study and evaluation of alternative locations for future transmission lines. For additional discussion of state and federal concerns related to the siting of major energy development projects, see section 11.6.

3.3.2. Montana Power Company

The Montana Power Company (MPC) plans to apply for siting certificates, as mandated by the state's Major Facility Siting Act, for a number of new transmission lines. These proposed lines are listed in table V-3 in section 5.10.2.2. Whether and when these facilities will be built depends on the results of studies now underway by MPC, as well as on future load growth projections.

MPC has met with DNRC to discuss several proposed lines which may be needed in the near future. These are: 1) Roundup to Sumatra (Ivanhoe); 2) Laurel to Bridger; 3) Laurel to Alkali Creek; and 4) Stanford to Glengarry.

Applications will be submitted to DNRC when MPC determines the lines are necessary.

In conjunction with the company's proposed Salem Project (see section 3.1.2.3.), transmission line studies, including power flow and stability analyses, are currently underway. MPC prefers to use the existing transmission system to the greatest extent possible in order to minimize construction of new transmission facilities.

3.3.3. Washington Water Power Company

The Washington Water Power Company (WWP) is planning to add a 230-kilovolt transmission line from its switchyard at Noxon, Montana, to the Pine Creek substation near Kellogg, Idaho. According to WWP, the line would provide for future load growth, additional east to west power transfer capacity, and load relief on the Noxon-Pine Creek, Cabinet-Rathdrum, and Noxon-Bell 230-kilovolt lines during outages. The line would be connected to a new 230/115 kilovolt substation at Wallace, Idaho, to provide additional transmission capacity and reliability to the Kellogg-Wallace mining area.

This transmission line is being planned in conjunction with BPA's Garrison-Spokane 500-kilovolt line (see section 3.3.1.3.) and is included, along with other alternatives, in BPA's environmental impact statement for the project. The siting of the BPA transmission line will determine possible alternatives for the WWP line. WWP expects that the transmission line will be needed in the winter of 1984-85, which follows closely with the construction schedule for BPA's 500-kilovolt line.

3.3.4. Western Area Power Administration

3.3.4.1. Great Falls-Conrad

The Western Area Power Administration (WAPA) has proposed to build a 115-kilovolt or 230-kilovolt transmission line from Great Falls to Conrad to improve reliability of service and meet growing loads in the area. The proposed 90-mile line would run from Great Falls west to the Choteau-Fairfield area, where an intermediate substation would be constructed. From this area, the line would run north to Conrad, where it would interconnect with an existing 115-kilovolt system. After completion of the Great Falls-Conrad line, eventual construction of a new line from Conrad to Browning, Cut Bank, or Shelby is anticipated. This new line would support growing loads in the Glacier Electric Cooperative area.

WAPA is conducting environmental planning studies and is preparing an environmental report for the proposed project. Public planning workshops were held in the fall of 1982 to gather information and develop a list of concerns to be addressed in the EIS. The draft EIS is currently scheduled for release in April 1983; the final EIS is to be released in December. Construction of the project, expected to begin in 1984, would be completed in 1985.

Under a letter agreement between WAPA and DNRC, the department is reviewing the environmental studies to ensure that the level and range of topics and alternatives considered will provide sufficient information for the Board of Natural Resources and Conservation to determine whether the project complies with the substantive requirements of the Major Facility Siting Act.

3.3.4.2. Fort Peck-Havre

The Western Area Power Administration proposes to construct a 230-kilovolt transmission line to replace an existing 161-kilovolt transmission line between Fort Peck and Havre, Montana. The new line would be operated at 161 kilovolts until such time as area loads required converting the line and terminal facilities to 230 kilovolts. The project is proposed to improve system and service reliability, reduce the frequency and cost of maintenance, provide additional transmission capacity to accommodate future load growth, and reduce line losses. WAPA's preferred route would follow a different corridor than the existing line. The 180-mile route would begin at the Fort Peck power plant, 18 miles southeast of Glasgow, and would terminate at the Havre substation, 7 miles southwest of Havre. Concern has been expressed over how close the line will be to Fort Assiniboine, which is being considered for inclusion in the National Register of Historic Places.

A draft environmental impact statement on the project, released in June 1982, is currently being reviewed. Public

hearings on the project were held in July, and the final EIS is scheduled for release in May 1983. A final decision on the powerline route is expected to be reached by September 1983. DNRC reviewed WAPA's draft EIS on the proposed transmission line to determine compliance with the substantive requirements of the Major Facility Siting Act. Construction on the proposed line is presently scheduled to be completed in the fall of 1985.

3.3.4.3. Miles City Converter Station

The Western Area Power Administration is building a new converter station in Miles City to tie into its recently constructed Miles City-New Underwood transmission line. The station will permit conversion of up to 200 megawatts of alternating current to direct current and reconversion back to alternating current so that power can be transmitted between the east-side grid (encompassing most of the upper and central midwest states) and the west-side grid (Pacific Northwest and western states). This conversion will allow power to be moved between the two grids without producing the disabling power surges that have overloaded the existing system in the past. Construction of the converter station began in late 1982. Completion is set for early 1985.

3.4. NEW SOURCES OF ENERGY PRODUCTION

In the past, energy development and production usually have involved large-scale facilities and the associated large capital investments required to bring these facilities into operation. Now, however, rising energy prices and recent federal and state legislation have created an atmosphere in which small-scale energy production is economically feasible. As a result, many wind, biomass, and microhydropower projects are in operation or in the planning stages across the state. These projects range in size from those designed for small-scale household energy production to those producing energy for sale to utilities.

Western Montana has a high potential for microhydropower development, as evidenced by the number of Federal Energy Regulatory Commission (FERC) applications on file for the development of microhydropower sites in the region (see table VII-1 in section 7.3.2.). Present and future development of Montana's wind energy resource is taking place primarily east of the Continental Divide. Biomass energy development, on the other hand, exhibits no geographic limitation in Montana.

The following two subsections detail how development of two of these alternative sources of energy production is progressing in Montana.

3.4.1. Biomass Energy Development

The alcohol fuels industry was formally introduced to Montana with the opening of two commercial alcohol plants in 1981. A.E. of Montana, based in Amsterdam, Gallatin County, and Alco-Tech of Ringling, Meagher County, currently produce about 2 million gallons of anhydrous ethanol a year from Montana-grown wheat and barley. One gallon of the alcohol produced is mixed with 9 gallons of gasoline to produce 10 gallons of gasohol, also known as super unleaded gasoline with ethanol. The facilities also produce distilled grains, which can be used for high-protein cattle feed. A number of similar plants are in the planning stages at locations throughout the state.

In addition to these commercial-scale facilities, many smaller plants are being built to provide fuel alcohol to local markets. One of these is the Bronec Fuel Company located outside of Geraldine, Chouteau County. A unique aspect of this on-farm plant is the straw-fired boiler system that provides all of the plant's process heat.

Alcohol fuel research projects within the state are geared toward improving the existing grain-to-alcohol process. Researchers also are developing processes to use waste material, such as straw and wood residue, to produce fuel alcohol.

Some city and county governments are considering the use of solid waste as an energy source. Park County built a facility in Livingston that incinerates locally produced garbage in an energy recovery boiler system. Steam heat generated in the incineration process is sold for space heating. The process reduces the volume of solid waste that must be landfilled by 90 percent, and in so doing reduces disposal costs to the county and extends the useful lifetime of the landfill.

3.4.2. Wind Power Development

Harnessing power from the wind is nothing new to Montana. For decades, mechanical windmills have pumped water at remote stockwells, and before establishment of the Rural Electrification Administration and rural electric cooperatives, the plains of eastern Montana were dotted with windmills that supplied electricity to ranches and farmhouses. Rising fuel prices have brought about a renewed interest in this almost-forgotten energy resource.

Because of the wind tunnel effect created by the Absarokee and Gallatin mountain ranges, Livingston is one of the windiest communities in the nation. Data from an

intensive wind monitoring program conducted in the Livingston area show the average annual wind speed to be 16 miles per hour. Average wind speed during the winter is 21 mph; gusts of wind in the 80 to 90 mph range occur frequently.

Data collected through the monitoring program helped lay the groundwork for Montana's first nonresidential wind generator, installed by the Montana Power Company (MPC) in May 1980. This generator represented a landmark for wind energy development in Montana. With a rated capacity of 25 kilowatts, the generator was the largest wind turbine in the state and the first to be connected with a utility power grid. It also set the stage for further development of Livingston's wind resource. In December 1981, Livingston became the first city in the country to own a wind-powered utility system, or windfarm, when four similar 25-kilowatt turbines were connected to MPC's power grid.

The wind machines, though encouraging in operation, were not without their share of problems. In January 1982, two of the machines were destroyed in separate incidents. One of the four towers owned by the City of Livingston toppled on a cold and very windy morning, while the MPC windmill a few miles away crashed that afternoon. The remaining three windmills were shut down. Extremely cold temperatures caused a malfunction in the windmill's snubber mechanism and out-of-balance brake. The propellor picked up speed and threw a blade, and the resulting stress on the tower caused it to topple. The exact cause of the MPC machine failure has not been determined, although a similar chain of events is suspected.

By April 1982, the four windfarm towers were again in place, operating, and awaiting the next challenge from the climatic forces they were attempting to harness. Such weather extremes, though frustrating, do provide a side benefit to wind energy development—the sustained high wind velocities common to Livingston, coupled with the extremely low winter temperatures, provide accelerated testing conditions for wind turbines. The lessons learned have already resulted in improvements to wind energy systems throughout the West.

ENERGY LEGISLATION

4.1. MONTANA ENERGY LEGISLATION

Most of Montana's energy-related laws have been passed since 1971 in response to the growing interest in developing the West's energy resources and in the potential adverse impacts of extracting and converting nonrenewable energy sources. Considered in totality, the legislation summarized in this section is a statement of Montana's policy toward energy-related development.

Many of the descriptions of Montana laws which follow are summarized from material presented in the Environmental Quality Council's publication, *The Montana Environmental Index;* a number of them contain direct citations from the *Montana Codes Annotated* (MCA). The MCA should be consulted for complete texts of the law.

The laws are presented in the following five categories, with the recognition that some provisions could appropriately be placed in more than one category: regulatory; coal development impact; energy emergency planning; conservation and renewable energy; and energy-related taxes.

4.1.1. Regulatory Legislation

The regulatory laws relating to energy are administered primarily by DNRC, the Department of State Lands, and the Montana Public Service Commission. A common theme is the recognition that environmental, social, economic, and human health-related factors may be adversely affected by energy extraction, conversion, and distribution activities. Minimization and mitigation of impacts, equitable distribution of energy production costs, reclamation of natural resources, and energy conservation are points of emphasis.

4.1.1.1. Major Facility Siting Act
(Section 75-20-101 et seq. MCA)

This law, enacted in 1973, provides for comprehensive review of proposals to construct and operate certain kinds of facilities for generating, converting, or transmitting energy in Montana. The Legislature found that additional facilities may be required to meet an increasing demand for electricity and other forms of energy, but that such facilities have major impacts on the environment, on population distribution, and on the welfare of the state's citizens. To minimize adverse impacts, the Board of Natural Resources and Conservation must certify public need for and environmental compatibility of such facilities before construction begins.

The act applies to: 1) facilities that can generate 50 megawatts or more of electricity; 2) facilities that can produce 25 million cubic feet or more of gas derived from coal per day; 3) facilities that can produce 25,000 barrels of liquid hydrocarbon products per day; 4) uranium enrichment facilities; 5) facilities that can use, refine, or convert 500,000 tons of coal or more per year; 6) electric transmission lines greater than 69 kilovolts capacity, with certain exceptions for lines covering short distances; 7) facilities for developing and using geothermal resources capable of producing 25 million Btu per hour or more; 8) facilities for *in situ* coal gasification; and 9) pipelines leading to or from a facility as defined above. Crude oil and natural gas refineries and facilities designed for producing, gathering, processing, transporting, or distributing crude oil or natural gas, and those facilities subject to the Montana Strip and Underground Mine Reclamation Act (coal and uranium mines) are excluded. Facilities under exclusive federal jurisdiction also are exempt.

Applications for facilities filed under the act must include a description of the proposed facility, with discussion of alternative sites, an explanation of need for a utility facility, and a filing fee, based on the estimated construction cost of the facility, to finance the state's evaluation.

Applicants are required to file a joint application with both DNRC and the Department of Health and Environmental Sciences (DHES) for a certificate of environmental compatibility and public need and for the permits required by the various laws administered by DHES. Both departments must accept an application as complete before the evaluation process can begin.

Within one year after accepting an application, DHES and the Board of Health, if applicable, within an additional six months, must issue a decision with regard to the laws they administer, including state and federal air and water quality statutes. Compliance must be determined for the primary and reasonable alternate locations for a proposed facility. DHES's or the Board of Health's decision is final on all matters under their jurisdiction. The Board of Natural Resources has the ultimate authority to determine that a site represents the minimum adverse environmental impact.

Following acceptance of an application for an energy conversion facility or major transmission line, DNRC has up to 22 months to report to the board. The time limit for DNRC's review and report for transmission lines under 30 miles long is one year.

DNRC and DHES may not accept an application unless the facility is identified in a long-range plan submitted to DNRC at least two years before the application is filed (for a discussion of long-range plans, see section 5.10.2.2.1.).

Applicants are required to submit baseline data for the preferred and reasonable alternate site locations identified in an application. The 1981 Legislature amended the act to allow the Board of Natural Resources to waive the alternative site studies if it can be shown that the preferred site is in a county that has experienced severe unemployment problems and that the affected units of local government are in favor of the project.

The board must schedule a hearing within 120 days of receiving the department's report. The applicant, the departments, affected municipalities, residents, and interested organizations may participate. The entire hearing process, from the date of the department's report to the board until the hearing examiner's report is filed, may not exceed nine months unless the board extends the time for good cause. The board must make its decision within 60 days after the hearing examiner's report is submitted.

A certificate may not be granted unless the board finds and determines: 1) the nature of the probable environmental impacts; 2) that the facility represents the minimum adverse environmental impact, considering the state of available technology and the economics of various alternatives; 3) that the facility is consistent with regional plans for expanding utility grids and will serve system economy and reliability; 4) that the facility's proposed location conforms to state and local laws and regulations; 5) that the Board of Health has certified that the facility will not violate air and water quality standards and implementation plans; and 6) for a utility application, that the facility serves the public interest, convenience, and necessity. Need, environmental impacts, benefits to the applicant and the state, effects of resulting economic activity, and effects on public health, safety, and welfare must be considered in making these determinations.

An initiative passed in 1978 amended the MFSA to require the Board of Natural Resources to find that a number of additional conditions are met before a nuclear power plant may be certified. The voters of the state must then approve the facility either by referendum or initiative.

The act requires annual submission of long-range plans by any person contemplating construction of a facility within the ensuing 10 years. The plans must also be filed with the Public Service Commission, the Environmental Quality Council, DHES, and the Departments of State Lands, Highways, Commerce, and Fish, Wildlife and Parks.

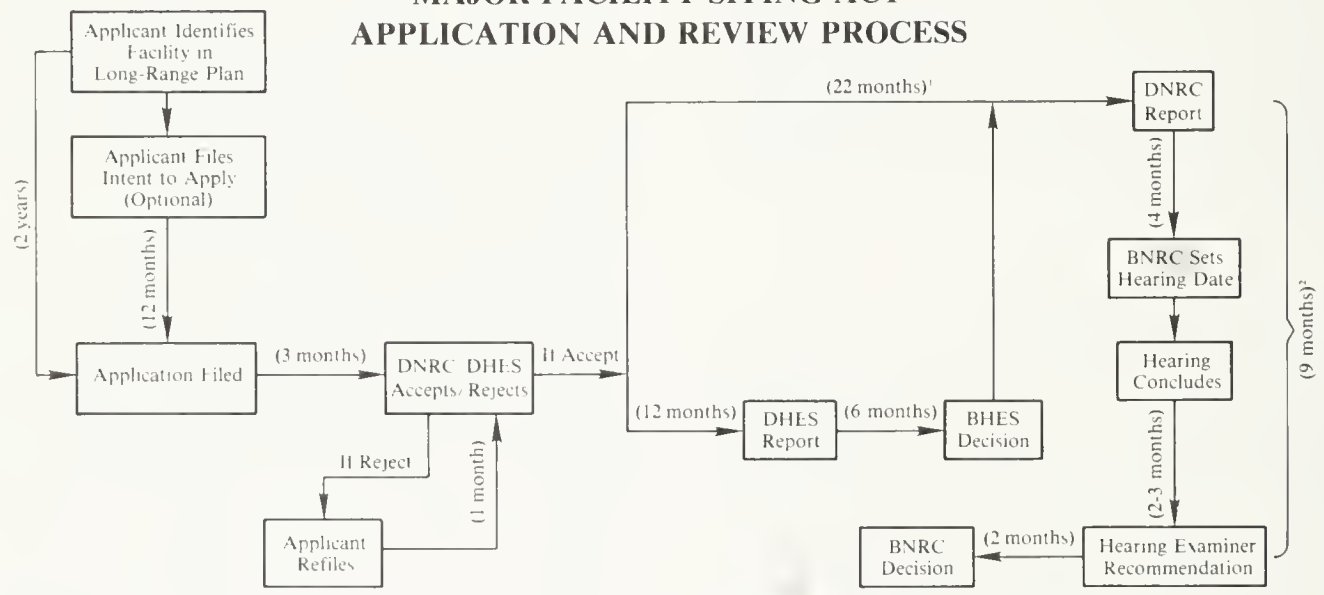
Certificates may be revoked for failure to meet safety standards or failure to comply with any other conditions imposed by the board. Penalties up to $10,000 per day may also be assessed. DNRC is responsible for monitoring the operation of facilities.

Figure IV-A outlines the MFSA application and review process. Administration of the siting act is discussed in section 5.10.2.2.

4.1.1.2. Public Utility Rate Regulation
(Section 69-1-101 et seq. MCA)

The Montana Public Service Commission (PSC) supervises and regulates all public utilities that produce or

FIGURE IV-A
MAJOR FACILITY SITING ACT
APPLICATION AND REVIEW PROCESS



DNRC Department of Natural Resources and Conservation
BNRC Board of Natural Resources and Conservation
DHES Department of Health and Environmental Sciences
BHES Board of Health and Environmental Sciences
[1] Twelve months for transmission lines and certain pipelines less than 30 miles in length
[2] Unless extended by the BNRC for good cause

deliver heat, street and railway service, light, power, water (for business, manufacturing, household use, or sewerage), and telegraph or telephone service. The commission consists of five members elected from geographic districts for four-year terms.

Public utilities are required to provide reasonably adequate service at reasonable rates. Rate schedules must be filed with the PSC and any changes in the rates require PSC approval. Before approving a rate change, the PSC must publish a notice of the proposed change, announce a hearing date, and inform the public about how to participate. Hearings are conducted under contested case provisions of the Administrative Procedures Act. In setting the rates, the PSC may ascertain the value of the utility's property and take into account its expenses and capital. Case law also has established that utilities must have an opportunity to earn a fair rate of return on their investments. Utility advertising costs may not be included as expenses, except for advertising that encourages energy conservation or the development of renewable energy sources. If the PSC takes no action within nine months after requested changes are filed, the new rates become effective. If the final order of the PSC later reduces the increase, the revenues collected in excess of the final order will be rebated to consumers, plus 10 percent annual interest.

The PSC may investigate all aspects of the management of a public utility's business and may regulate the issuance of securities. Permission to issue or acquire securities is granted unless it is inconsistent with the public interest or for a purpose not permitted by law, or if the aggregate amount of securities outstanding or proposed exceeds the fair market value of the utility's property.

Either on its own motion or on receiving a complaint alleging unfair, discriminatory, or unreasonable rates, inadequate service, or unreasonable rules or procedures, the PSC may conduct an investigation and hold a hearing after which it may issue orders adjusting rates, procedures, and services. Any interested party may appeal an order to district court within 30 days. Unless an injunction is granted to stay an order, the order becomes effective in 20 days. If new evidence is raised at the trial, the PSC may redetermine an order.

4.1.1.3. Pipeline Regulation
(Section 69-13-101 et seq. MCA)

This law determines that common carriers (pipelines) of petroleum or coal products are of public interest and subject to state regulation. The PSC may establish and enforce rates and regulate the gathering, transportation, loading, and delivery of the products. Carriers must make monthly reports to the PSC and, as with other utilities, the business is open to PSC inspection. Discrimination in prices or services is prohibited.

4.1.1.4. Small Power Production Facilities
(Section 69-3-601 et seq. MCA)

The sale of electricity from qualifying small power production facilities to public utilities and electric cooperatives in Montana was authorized by the 1981 Legislature. A qualifying small power production facility is one that: 1) produces electricity by the primary use of a renewable resource such as wind or water; 2) has a power production capacity of no more than 80 megawatts at the site; and 3) is owned by a person not primarily engaged in the generation or sale of electricity other than from a small power production facility.

The terms of the sale of electricity to an electric cooperative must comply with the rates and regulations established by the federal Public Utility Regulatory Policies Act of 1978. In the case of sale of electricity to a public utility, the Montana Public Service Commission (PSC) is empowered to set the rates and conditions of the sale if the small power production facility and the utility cannot mutually agree to a contract. In setting the rates, the law requires the PSC to consider the following standards: 1) Long-term contracts for the purchase of electricity by the utility are encouraged to enhance the economic feasibility of qualifying small power production facilities; 2) The rates paid by a utility for electricity purchased from a qualifying facility should consider the availability and reliability of the electricity produced; 3) The PSC may set these rates by using any of the following methods: the avoided cost over the term of the contract; the cost of production for the qualifying facility plus a just and reasonable return; or any other method that will promote the development of qualifying small power production facilities. To implement this law, the PSC held rule and rate-making proceedings in 1982 (see section 5.12.2.).

4.1.1.5. Strip and Underground Mine Reclamation Act
(Section 82-4-201 et seq. MCA)

This law, passed in 1973 and revised extensively in 1979, applies to coal and uranium strip and underground prospecting and mining operations that remove more than 10,000 cubic yards of mineral or overburden per year. The Board of Land Commissioners and the Department of State Lands (DSL) administer the law.

The reclamation law declares it is"the policy of this State and its people: 1) to maintain and improve the State's clean and healthful environment for present and future generations; 2) to protect its environmental life support system from degradation; 3) to prevent unreasonable degradation of its natural resources; 4) to restore, enhance, and preserve its scenic, historic, archaeologic, scientific, cultural and recreational sites; 5) to demand effective reclamation of all lands disturbed by the taking of natural resources; and 6) to require the Legislature to provide for proper administration and enforcement...in order to achieve the aforementioned objectives." The Legislature found it necessary to require permits for mining operations, a comprehensive plan for reclamation and an adequate performance bond, and to probibit mining on certain land.

A one-year permit must be secured from DSL before any exploratory work may begin. A prospecting map, reclama-

tion plan, and description of prospecting techniques must be submitted, and a reclamation bond must be posted.

Before mining begins, a five-year permit, contingent on an acceptable reclamation plan for the affected land, vegetation, and water, must be secured. A bond is also required to cover actual reclamation costs. The permit application must include written consent or a waiver by the surface owner(s) of the proposed mining area.

By law, DSL may not approve a mine application if: 1) any part of the proposed operation would be contrary to the purpose of the act; 2) the proposed site or neighboring area includes land having special, exceptional, critical, or unique characteristics (these are defined as: a) biological productivity essential to certain wildlife species or domestic stock; b) ecological fragility, in the sense that the land could not return to its former ecological role in the reasonably foreseeable future; c) ecological importance, in the sense that mining could precipitate a system-wide reaction of unpredictable scope; and d) scenic, historic, archaeological, topographic, geologic, ethnologic, scientific, cultural, or recreational significance, with particular attention to Plains Indian history and culture); 3) the overburden on any part of the area has historically proved to be a problem in terms of landslides or various forms of water pollution (DSL shall delete that area from the mining plan); and 4) the operation constitutes a hazard to a personal dwelling or public property (such areas shall be deleted).

The mining operation must begin reclamation"as rapidly, completely and effectively as the most modern technology and the most advanced state of the art will allow." The law requires specific actions and includes technical requirements for backfilling, grading, and topsoil replacement. The operator is required to submit annual progress reports, but may propose alternatives in the process if they are consistent with the intent of the law. DSL may order appropriate changes.

All fees, forfeit funds, and other monies collected under the law are put in the mining and reclamation fund for administering and enforcing the law and for reclamation.

The law provides several types of legal recourse for violations, including: 1) state suits against the mine operator for civil penalties of between $100 and $5,000 per violation per day; 2) a misdemeanor for willful violation carrying a $500 to $10,000 per day penalty; 3) a citizen's suit against a public official to compel him or her to enforce any provision being violated; and 4) a suit for damages against the operator by an owner of real property whose use of underground water is impaired.

Several changes in the law were made by the 1979 and 1981 Legislatures to comply with the federal Surface Mining Control and Reclamation Act of 1977 and conditions of the Secretary of the Interior's approval of the Montana program (see section 5.8.1.). These changes included more stringent civil penalties for violations, authorization for designating lands unsuitable for mining process, and restrictions on mining in certain alluvial valley floors. The law also was changed to allow revegetation to cropland or pastures as an alternative to predominantly native species.

4.1.1.6. Strip and Underground Mine Siting Act
(Section 82-4-101 et seq. MCA)

Passed in 1974 and amended in 1975, this act applies to coal and uranium mines and establishes a state policy "to provide adequate remedies for the protection of the environmental life support systems from degradation and provide adequate remedies to prevent unreasonable depletion and degradation of natural resources." The purpose of the act is to assure that facilities are not built without an approved mine and reclamation plan.

This act applies to any mining operations that remove more than 10,000 cubic yards of mineral or overburden annually. The mine site location permit called for by the act is required only when the onsite mining facilities are to be built in advance of and separate from the mining itself. The permit is then valid only until a permit has been issued under the Strip and Underground Mine Reclamation Act (see previous section).

An applicant must submit a complete application and mine and reclamation plan, as well as a surety bond, before receiving a permit. DSL may not issue a permit if it finds that: 1) the proposed mine violates the purposes of the act; 2) the area could not be approved under the selective denial criteria of the reclamation act; or 3) reclamation plans do not meet the requirements of the reclamation act.

To date, no permit has been applied for or issued under this act.

4.1.1.7. Coal Mining Leases and Payments
(Section 77-3-301 et seq. MCA)

The Board of Land Commissioners may lease state lands for coal mining where the state owns the mineral rights. Leases are awarded through a competitive bid system and the state must be compensated commensurate with the market value of the coal reserves, as determined by the board. All mining operations must be carried out in an orderly manner and must not make subsequent mining more difficult or expensive. All leases require that the coal be mined, handled, and marketed in a manner that will prevent waste.

Leases are issued for 10 years, as long as the operation is producing commercial quantities of coal. If it is not, the lease is terminated unless the operator has a strip mining or mine site location permit before the 10-year term expires. Leases may not be issued for strip-mining operations that would adversely affect future deep mining. Leases may not be issued to a corporation, the majority stock of which is controlled by foreign interests. However, state lessees may sell coal to foreign interests, due to an amendment to this law enacted by the 1981 Legislature.

Payments are on a rent and royalty basis. Rentals must be at least $2 per acre and royalties must be at least 10 percent of the mine-mouth price of the coal. Rates may be adjusted at the end of the initial 10-year lease and every five

years thereafter. Rentals and royalties are credited to the state school fund.

4.1.1.8. Geothermal Resources—Leases on State Land
(Section 77-4-101 et seq. MCA)

The Board of Land Commissioners may lease state lands, including the beds of navigable streams and lakes, for exploration and development of geothermal resources. Leases for other uses, such as coal mining, do not include rights to geothermal resources. Leases are generally for not more than 640 acres and are for an initial 10-year term. The lessee is expected to be diligent in exploration and development and is required to pay an annual "delayed exploration penalty" after the third year if activities have not begun or continued. Rentals and royalties, based on energy, minerals, and chemicals produced, are credited to the state's general fund and must equal at least $2 per acre per year. The state reserves all surface rights to land leased for geothermal development.

4.1.1.9. Oil and Gas Leases on State Land
(Section 77-3-401 et seq. MCA)

The Board of Land Commissioners may lease state lands for which the state holds the oil and gas rights. Lease arrangements are the same as those described for geothermal development, except that the lease may be terminated if: 1) drilling has not begun within two years; 2) after drilling a dry hole, a new well is not begun before the anniversary of the lease following completion of the first well; 3) delay drilling penalties are not paid. Rental fees and royalties are set by the board. Leases also may be granted for up to 20 years for underground storage facilities for natural gas. Prevention of waste or destruction of the resource are major conditions accompanying all leases.

4.1.1.10. Oil and Gas Resource Conservation
(Section 82-11-101 et seq. MCA)

The Board of Oil and Gas Conservation is authorized to regulate oil and gas production in order to prevent waste, including practices that might result in inefficient extraction, excessive surface loss, inefficient storage, or unnecessary dissipation of reservoir energy. The board, whose seven members represent the public, landowners, and the oil industry, has broad powers to supervise drilling operations in order to prevent pollution and to ensure safety. In the interest of conservation, the board may require restricted production rates for some types of wells.

Board regulations allow only one well to be drilled in each drilling or spacing unit, except under unusual circumstances. The board may order well-spacing units for an oil and gas pool to prevent waste. The size of the spacing units is based on the depth of the wells and the anticipated areal drainage of the wells at that depth. The board may issue orders, on request, to unitize a field or portions thereof for secondary recovery projects. Such an order must be based on a hearing that establishes that the unit is necessary to increase ultimate recovery, that the benefits outweigh the costs, and that the pool to be included has been reasonably defined by drilling operations. The order is not effective unless it is approved by 80 percent of the owners of the oil and gas interests within the well-spacing unit.

Well owners must plug abandoned wells and restore the disturbed land to its previous grade and productive capability unless the surface owner agrees in writing, and with board approval, to a different restoration plan. Well owners must notify surface owners of their intention to plug and abandon a well. The board may draw on the Resource Indemnity Trust Fund (see section 4.1.5.2.) to restore land if a well owner cannot be located or identified.

Before drilling, an operator must file a notice and secure a permit from the board. Companies engaged in oil and gas development must pay a drilling permit fee and a privilege and license tax on production. They also must post a bond sufficient to assure that each dry or abandoned well is properly plugged. Revenues are used to administer and enforce the law.

4.1.1.11. Geophysical Exploration Protection
(Section 82-1-101 et seq. MCA)

Any person engaging in geophysical exploration that requires the use of explosives and seismographic measurements must obtain a permit from the county in which the work is to be done. A bond must be filed to assure that holes are properly plugged to avoid adverse impacts on ground water.

4.1.1.12. Underground Gas Storage Reservoirs Regulation
(Section 82-10-301 et seq. MCA)

This law gives limited condemnation rights to natural gas utilities for land to be used for gas storage reservoirs that provide for orderly withdrawal of gas reserves in periods of peak demand. Areas currently in oil production or capable of such are exempt. The Board of Oil and Gas Conservation must hold a hearing and find that the land is suitable for such use and that the public interest is served by the reservoir.

4.1.1.13. Surface Owner Rights for Oil and Gas Development
(Section 82-10-501 et seq. MCA)

The 1981 Legislature enacted this law to protect surface owners of land underlain with oil and gas reserves. The Legislature recognized that surface owners should be compensated for"use of their property and interference with the use of their property" due to necessary development of these reserves.

By law, oil and gas developers must give written notice of their intent to begin drilling operations; the notice must include work and operating plans so that the surface owner can evaluate the impact that drilling operations may have on his or her land. The law also requires oil and gas developers to compensate the surface owner for damages and lost property value caused by drilling and production operations.

4.1.1.14. Petroleum Products Regulation
(Section 85-15-101 et seq. MCA)

The Department of Commerce establishes standards and specifications for petroleum products, based on nationally recognized standards. Petroleum dealers must be licensed and the department may investigate all dealer facilities and records. Annual fees are assessed on each pump, meter, and tank. This equipment must be calibrated and approved by the department.

4.1.1.15. Sale and Marketing of Coal
(Section 82-3-201 et seq. MCA)

The Department of Commerce enforces this act, which requires all entities"mining, shipping or producing coal, and...wholesaling, jobbing, exchanging, offering for sale or selling at retail any coal in this state" to keep accurate and complete copies of all original statements, bills, and invoices for at least one year for purposes of inspection. This material shall be open to inspection at all times by the department, the state's attorney general, and county attorneys.

4.1.1.16. Eminent Domain Policy for Coal Strip Mining
(Section 70-30-106 MCA)

Montana's eminent domain law was revised in 1973 to prohibit the use of the state's power of eminent domain for coal mining when the holder of mineral rights is not also the surface owner. This exception to the law exists for the following reasons: 1) The coal reserves of eastern Montana are so large that coal development is potentially more destructive environmentally and more extensive geographically than other forms of mining; 2) In many areas of eastern Montana, mineral and surface ownership is split and the surface owner is putting the surface to productive use. It is the state's policy to encourage current productive land uses and to discourage mining which would end those uses; 3) The magnitude of potential coal development will subject landowners to undue harassment by excessive use of eminent domain; 4) Surface mining of large areas would be contrary to the state's policy of encouraging diversity of land ownership.

4.1.1.17. Nuclear Wastes Control and Storage
(Section 75-3-101 et seq. MCA)

The 1977 Legislature passed this law to prohibit disposal within Montana of large quantities of radioactive materials produced in other states. This act does not apply to by-product materials used or transported prior to disposal for educational, scientific, medical, geophysical, or other purposes licensed by the U.S. Nuclear Regulatory Commission. This law became part of an existing statute that created a state radiation control agency in the Department of Health and Environmental Sciences to regulate and license sources of ionizing radiation.

Initiative 84, approved by voters in November 1980, amended the existing law covering nuclear wastes control and storage. The initiative forbids the disposal of radioactive waste material in Montana, except for some radioactive material used for medical, educational, and scientific purposes already being disposed of here. Initiative 84 does not specifically prohibit the mining of minerals, such as uranium, but it does forbid the disposal of radioactive waste produced by milling or other processing of ore.

In response to Initiative 84, the 1981 Legislature drafted a referendum that was submitted to the voters at the general election in November 1982 and disapproved. If it had been approved by the voters of the state, this referendum would have removed the prohibition of disposal of uranium mill tailings in Montana enacted by Initiative 84. It also would have established a regulatory system to control these radioactive waste materials and would have provided for the control and condemnation of land used for disposal of mill tailings from uranium and thorium ore processing.

4.1.2. Coal Development Impact Legislation

One important trend in energy-related statutes is to link more closely the benefits and revenues associated with energy development for the areas, persons, and government entities experiencing the adverse impacts and costs. Montana's coal development impact legislation channels part of the coal severance tax revenues to the coal impact areas of the state. (Coal severance tax funds are allocated to a number of special accounts, the state's general fund, and a special trust fund as outlined in section 4.1.5.1.)

Coal Development Impact Legislation
(Section 90-6-201 et seq. MCA)

Coal development impact legislation enacted in 1975 established two special accounts for coal tax revenues to assist local government units facing the need to expand services due to large-scale development of coal mines and coal-using energy complexes.

For the four fiscal years following July 1, 1975, all funds in the coal area highway improvement account were appropriated to the Department of Highways. The department prepared a special program for reconstructing highways in the eastern Montana coal field economic growth center, including Rosebud, Big Horn, and Treasure counties. The Department of Highways no longer receives funding from the coal severance tax.

The Coal Board, composed of seven gubernatorial appointees and assigned to the Department of Commerce, was established to evaluate grant applications from local governmental units (or state agencies assisting such units) for funds with which to respond to local coal development impacts. The board awards grants from a designated portion of coal severance tax revenues which are deposited in the local impact and education trust fund account. The board is directed to give attention"to the need for community planning before the full impact is realized." The Department of Commerce is responsible for identifying

counties, towns, school districts, and other government units which have had or expect to have an estimated 10 percent population increase during any three-year period since 1972 as a result of the impact of coal development. These units are to receive at least 50 percent of the funds available to the board. The unexpended balance in the local impact and education trust fund account is invested and the resulting income is used to support the public schools, colleges, and universities. Coal Board grants are awarded on the basis of need, degree of severity of impact, availability of funds, and degree of local effort in meeting the need. (In determining the degree of local effort, the board must consider millage rates and bonded indebtedness as they apply to each applicant.)

4.1.3. Energy Emergency Planning Legislation

Energy Supply Emergency Powers Act
(Section 90-4-301 et seq. MCA)

Recognizing that energy supplies may be subject to shortages and supply disruptions that may endanger public health and safety, the 1977 Legislature enacted the Energy Supply Emergency Powers Act. This act authorizes the governor to monitor the energy situation in Montana on a regular basis and to plan for energy emergencies. It specifies powers the governor may exercise during energy shortages and defines the conditions under which such powers may be used.

A legislative energy policy committee (see section 5.9.2.), consisting of the leadership of both houses, advises and consults with the governor on all actions taken under this law. It is the governor's responsibility to develop provisions for the allocation, conservation, and consumption of energy, giving consideration to supplying vital public services during an energy supply alert or emergency. The governor specifies procedures for obtaining energy information from producers, suppliers, consumers, and public agencies, to aid in determining the need for an energy supply alert or emergency. Energy suppliers may be required to submit curtailment plans. All plans and procedures must be coordinated with any federal or regional plans in existence. If necessary, the governor may subpoena witnesses and records to obtain the required information.

A supply alert lasts for 90 days and may be extended for 90-day periods. During an alert, the governor may direct state and local officials and agencies to reduce energy consumption and to promote conservation and recycling, but may only request voluntary compliance by the private sector.

When conditions exist which may threaten life, health, and property, the governor may declare an energy emergency, which lasts 45 days unless extended by a joint resolution of the Legislature. During an emergency, the governor may implement mandatory allocation, production, curtailment, and conservation programs in both the public and private sectors.

The 1981 Legislature authorized the governor to regularly monitor energy supply and demand and extended the duration of an energy emergency from 14 days to 45 days.

DNRC developed the Montana Energy Emergency Contingency Plan (see section 5.10.2.3.3.) for the governor. The plan specifies the actions the governor and state government may take should there be shortages of electricity or petroleum products in Montana.

4.1.4. Conservation and Renewable Energy Legislation

Energy supply limitations correspond to the finite, nonrenewable nature of fossil fuels and the ever-increasing costs of large-scale energy production and distribution. The following statutes address energy conservation and renewable forms of energy.

4.1.4.1. Renewable Energy Grants and Loans
(Section 90-4-101 et seq. MCA)

Since this law was enacted in 1975, DNRC has been authorized to award grants to encourage research, development, and demonstration of such renewable energy sources as solar, wind, geothermal, hydro, and biomass. The 1981 Legislature expanded the law to allow DNRC to make loans through participating financial institutions to stimulate commercialization of renewable energy sources. The grants and loans support projects conducted within the state that address Montana's energy needs.

Any person or organization may apply to DNRC for a grant to support research, development, education, public information, or demonstration of alternative energy systems. Grants are awarded for one year; preference may be given to projects that have been approved for federal funding and require matching money, or to independent research centers. All information resulting from funded research is public property.

Any new or expanding business incorporated or authorized to do business in Montana is eligible to apply for a loan. The activities funded must be conducted in Montana and may include development, design, building, manufacturing, marketing, distribution, or sale of a renewable energy form, process, system or system component, or of renewable energy information. All renewable energy loans must be repaid within 10 years.

Under this law, DNRC is given the option of appointing an Alternative Energy Advisory Committee composed of Montana citizens with expertise in alternative energy matters. The final decision on funding rests with DNRC's director after hearing recommendations of the staff and council. DNRC reports to each legislative session on the conduct of the program.

The 1981 Legislature amended the law to require DNRC to submit periodic reports to the Environmental Quality Council (EQC) for review and evaluation of the program. EQC may then make recommendations on the program, which could include proposals for legislation, to assure the

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greatest possible benefit of the program to the people of the state. The Legislature also placed certain restrictions on the commitment of program funds for demonstration purposes to ensure that such projects have good potential for producing savings of nonrenewable energy sources. Legislation also was enacted that reduced the amount of state coal severance tax revenues going to the program from 2.5 percent to 2.25 percent.

Administration of the grants and loans program is discussed in section 5.10.2.1.9.

4.1.4.2. Energy-Related Tax Incentives
(Section 15-32-101 et seq. MCA)

The Legislature has enacted several tax incentive programs to encourage the use of alternative energy sources and energy conservation. The incentives are designed so that the energy user takes the initiative in obtaining a particular incentive. The law allows, but does not require, a public utility to extend credit for energy conservation investments.

Income Tax Credit for Renewable Energy. Individuals who install renewable energy systems in their principal residence in Montana before December 31, 1982, can claim credits to reduce their state income taxes. They can earn credit for systems installed since December 31, 1976, if not already claimed. The maximum credit is $125: 5 percent of the first $1,000 of the cost of the system, plus 2.5 percent of the next $3,000.

Qualifying renewable energy systems use solar energy, wind, solid wastes, or the decomposition of organic wastes for energy generation. Also included are systems for generating electricity from wood wastes and hydropower from impoundments no larger than 20 acres. The 1979 Legislature made passive solar systems eligible for the income tax credit, but only the portion of the passive system that is designed to collect, store, and distribute solar energy (additional south-facing windows or heat storage mass, for example) qualifies. A few examples of eligible renewable energy systems are geothermal space heaters, small-scale hydropower systems, wind-powered electrical generators, and active or passive solar installations. The Department of Revenue does not allow tax credits for heat pumps, wood stoves, and fireplaces.

Income Tax Credit for Energy Conservation. Montana taxpayers can qualify for a 5 percent tax credit, up to a maximum of $150, for energy conservation improvements installed in residential buildings; a 5 percent credit, up to a maximum of $300, is given for commercial, industrial, or agricultural buildings.

The costs of materials and installation of an energy conservation project, minus the value of public or private grants received, are eligible for the tax deduction. The entire cost of energy conservation work done in existing structures qualifies for the deduction; however, in new construction only the portion of the work that exceeds state energy conservation standards is eligible.

A state income tax credit is subtracted directly from the state income tax a resident owes. The tax credit may be taken only for the year the installation is completed and only for buildings (including mobile homes) located in Montana.

Energy conservation installations qualifying for the income tax credit include insulation, storm doors and windows, hot-water restrictors, caulking and weatherstripping, and clock-regulated thermostats. Wood stoves, fireplaces, and fireplace modifications (with the exception of glass fireplace doors) are not eligible for these state tax incentives.

Corporation Income Tax Deduction for Energy Conservation. Montana corporate taxpayers can qualify for a maximum $1,800 deduction for energy conservation work installed in residential buildings, and a maximum deduction of $3,600 for commercial, industrial, or agricultural buildings.

Low-Interest Loans for Renewable Energy and Energy Conservation. Public utilities and financial institutions in Montana may make low-interest loans for the installation of energy conservation materials or recognized nonfossil forms of energy generation in dwellings.

Public utilities that provide natural gas or electric service within the state may make energy conservation and renewable energy loans to their customers at a maximum annual interest rate of not more than 7 percent. There is no minimum interest rate.

Montana financial institutions (state and federally chartered banks and trust companies, savings and loan associations, credit unions, and consumer loan companies) also may make low-interest loans. The maximum rate the institutions may charge is two percentage points below the discount rate on 90-day commercial paper, an interest rate given to preferred customers. This rate may change at irregular intervals. There is no minimum rate for the loans, and the same maximum applies to both energy conservation and renewable energy loans.

Participation in the loan program by any utility or financial institution is voluntary. Those that participate earn state tax credits to reimburse them for the costs of the program. However, the amount of credit each can claim is limited, thus restricting the number of loans made each year.

Four public utilities in Montana have already developed interest-free energy loan programs, described in section 9.8. Most utilities give loans for energy conservation rather than for renewable energy generation.

4.1.4.3. Property Tax Exemption for Renewable Energy
(Section 15-6-201 MCA)

An individual or firm that installs a recognized nonfossil generating system in any kind of building in Montana after January 1, 1979, is eligible for a 10-year property tax exemption based on the value of the system. For a single family residential dwelling (including mobile homes),

property taxes are exempted on up to $20,000 of the system's appraised value. Up to $100,000 of the system's value is exempt if it is installed in a multifamily residential dwelling or in a nonresidential structure.

The assessor in each county administers the property tax exemption, following rules adopted by the Department of Revenue's Property Assessment Division.

4.1.4.4. Gasohol License Tax Reduction
(Section 15-70-204 MCA)

Gasohol (a blend of gasoline and at least 10 percent ethanol) produced in Montana from Montana-grown agricultural products is taxed at a lower rate than standard gasoline. The 1979 Legislature established a sliding scale of fees for eligible gasohol as follows:

— beginning April 1, 1979, gasohol is taxed at 2 cents/gallon;
— beginning April 1, 1985, gasohol is taxed at 4 cents/gallon;
— beginning April 1, 1987, gasohol is taxed at 6 cents/gallon.

The special tax rates terminate on April 1, 1989. If the tax on standard gasoline (currently 9 cents/gallon) ever falls below the gasohol scale during the period, the lower rate will apply to gasohol as well. But, if the loss of tax revenues from gasohol impairs the maintenance or construction of the state or federal highway system, the governor can suspend the lower gasohol tax rate.

Before they begin operations in the state, prospective gasohol distributors must purchase a license and post a bond (at least $1,000) with the Department of Revenue's Motor Fuel Tax Division.

4.1.4.5. Gasohol Facility Property Tax Reduction
(Section 15-6-135 MCA)

Since January 1, 1980, property taxes have been reduced for any real or personal property used primarily in the production of gasohol in Montana. A law passed by the 1979 Legislature allows the tax reduction during the construction of the gasohol facility and during its first three years of operation. Eligible gasohol facilities are designated as Class 5 property, which is taxed at 3 percent of its market value.

4.1.4.6. Solar Easements
(Section 70-17-301 et seq. MCA)

The 1979 Legislature authorized the establishment of solar easements to help protect Montanans' investments in solar energy. A solar easement, like other easements, is a legal device that allows a landowner to transfer the right to use property in specified ways, without transferring the actual ownership of the property. (For example, a person who installs a roof-mounted solar energy system that could be shaded by trees or a future building project by an adjacent landowner might seek a solar easement to ensure continued access to the sun.) The landowner can still use the land in any way that doesn't interfere with the rights granted to the person holding the easements.

When the easement is granted, the owner of the property must agree to the action, since the solar easement is a voluntary procedure. But once granted, an easement remains in effect even if the landowner who granted it sells the property. The easement can also be granted for a specified period of time, or under certain conditions.

A solar easement must be properly filed with the local county clerk and recorder's office. A written document must specify at least the legal description (boundaries) of the property, the vertical and horizontal angles at which the easement extends over the property, and any conditions under which the easement is granted or may be terminated. Besides these requirements, standard rules for documenting an easement may apply.

4.1.4.7. Home Weatherization
(Section 90-4-201 et seq. MCA)

All federal funds available to Montana that can increase the energy efficiency of dwellings occupied by persons of low and fixed incomes, except under Title XX of the Social Security Act, are coordinated by the Department of Social and Rehabilitation Services. The statute specifies that the department may not use more than 5 percent of the total weatherization funds for administering the weatherization program. A fraction of the remaining money is allocated among the governor's substate planning districts in proportion to the number of eligible households in each district. Before the department approves these funds, local government units in each district must review and comment on the plans and proposed agreements submitted by the districts. State and federal weatherization funds are allocated to local weatherization programs annually.

The administration of the home weatherization program is discussed in section 5.14.1.

4.1.4.8. Residential Conservation Service
(Section 90-4-501 et seq. MCA)

The 1981 Legislature authorized DNRC to administer the residential conservation service program in Montana. The purpose of the program, which was mandated by the National Energy Conservation Policy Act of 1978, is to provide Montana residents with "a means of determining the need for and the cost-effectiveness of various energy conservation measures in their homes." DNRC is developing procedures to help homeowners obtain financing for energy conservation measures. To do this, DNRC works with Montana utilities to: 1) provide lists of and propose uniform qualification standards for contractors, lenders, and suppliers; 2) adopt procedures for energy audit and financing applications; and 3) establish a system for monitoring the residential conservation service program.

The administration of this program is discussed in section 5.10.2.1.10.

4.1.4.9. State Building Code
(Section 50-60-201 et seq. MCA)

The 1975 Legislature directed the Department of Administration to adopt rules for including energy conservation standards in the state building code. The standards, adopted in 1978, were based on a model "Code for Energy Conservation in New Building Construction" prepared by the National Conference of States on Building Codes and Standards and the U.S. Department of Energy. The enforcement of the energy conservation standards is discussed in section 5.1.

4.1.4.10. Renewable Resource Development
(Section 90-2-101 et seq. MCA)

This measure provides for a tax on nonrenewable resources, such as coal, to give financial support to renewable resource development that ensures the preservation of the state's natural heritage and the quality of its land, air, water, fish, wildlife, and recreational opportunities. The 1975 Legislature established a renewable resource development account that now receives 0.625 percent of the coal severance tax.

DNRC administers the Renewable Resources Development Program and may recommend to the governor that grants and loans from the renewable resource development account be made to any department, agency, board, commission, or other division of state government. Loans may be approved to any local government body, as well as state agencies. Grants requested at the local level must be sponsored by a division of state government. All proposals must receive legislative approval before funding is authorized.

Funding may be provided for purchasing, leasing, or constructing projects for the conservation, management, utilization, development, or preservation of the land, water, fish, wildlife, recreational, and other renewable resources in the state; for feasibility and design studies for such projects; for plans to rehabilitate, expand, or modify existing projects; and for such other similar purposes as the Legislature may approve.

4.1.4.11. Small-Scale Hydroelectric Generation at State Projects
(Section 85-1-501 et seq. MCA)

Recognizing the possibilities offered by newly developing technologies and the increasing cost of energy, the 1981 Legislature authorized DNRC to study the economic and environmental feasibility of constructing and operating small-scale hydroelectric power facilities at state-owned water projects. The Legislature asked for periodic updates of such studies as the cost of electrical energy rises.

In determining the feasibility of hydroelectric generation at a particular project, DNRC must consider: 1) the estimated cost of constructing, maintaining, and operating the facility; 2) the estimated cost of tying into an existing electric power grid; 3) the ability of public utilities or rural electric cooperatives to lease and operate the facility; 4) the debt burden to be serviced and the revenue expected from the facility; and 5) the potential for a reasonable rate of return on the investment.

The law allows DNRC to lease such projects for the purpose of power generation; it specifically authorizes the construction and operation of such facilities by DNRC if no lease is negotiated. The final determination on whether to award or deny a lease to an applicant is made by the Board of Natural Resources and Conservation.

DNRC cannot sell power generated at a facility except to a public utility, a rural electric cooperative, or a federal power-marketing agency organized in Montana and selling power to Montana customers. If the utility and the operator of a small-scale hydroelectric facility at a state-owned site cannot mutually agree to a contract for the sale of electricity, the Montana Public Service Commission may require the utility to purchase the power under rates and terms established by the commission.

4.1.4.12. Solid Waste Management Act
(Section 75-10-101 et seq. MCA)

The purpose of this law, which was enacted in 1965 and substantially revised in 1977, is to encourage management of solid waste and the conservation of natural resources by promoting solid waste recycling systems for energy production purposes, where economically feasible. The act mandates the preparation of a state solid waste management plan, which emphasizes the maximum possible recycling of solid waste resources; maximum possible use of the private sector in constructing and operating solid waste facilities; and the allocation of primary management and decision responsibilities to local authorities. The Department of Health and Environmental Sciences (DHES) administers the program and is directed to provide financial and technical advisory assistance to local governments and other persons in the planning, design, construction, and operation of facilities and systems.

Solid waste management grants are available from DHES to local governments to help finance the planning of solid waste systems. In allocating grant funds, DHES bases its priorities on: 1) the degree of use of private enterprise; 2) the size of the population to be served; 3) the financial viability of the project; and 4) the severity of the environmental and health problems addressed. The grants program is discussed in section 5.6.3.

4.1.5. Energy-Related Taxes

Montana has traditionally derived revenues from energy extraction and conversion activities through taxes such as the oil and gas severance tax, the oil and gas net proceeds tax, the electrical producers license tax, the gasoline license tax, and the coal severance tax. These taxes are discussed in the following sections.

4.1.5.1. Coal Severance Tax
(Section 15-35-101 et seq. MCA)

Montana's current coal severance tax law was enacted in 1975. This law repealed the coal mines license tax and deleted coal from the provisions taxing the net proceeds of mines. In passing the coal severance tax act, the Legislature noted that the differences between coal and metals or petroleum are such that they should be classified in different categories for taxation purposes.

The purposes of the coal severance tax are: 1) to maintain severance taxes on coal production at a constant percentage of the price of coal; 2) to stabilize the flow of tax revenue from coal production to local governments; 3) to simplify the structure of tax revenue from coal production and improve the reliability of revenue projections; and 4) to establish tax categories that recognize the unique character of coal.

The coal severance tax act established a variable tax rate depending on the heating (Btu) value of the coal mined and whether it was mined by surface or underground methods. These rates are shown in the following table, in which value means the contract sales price.

Heating Quality (Btu/pound of coal)	Surface Mining	Underground Mining
	The greater of	*The greater of*
Under 7,000	$0.12 or 20% of value	$0.05 or 3% of value
7,000-8,000	$0.22 or 30% of value	$0.08 or 4% of value
8,000-9,000	$0.34 or 30% of value	$0.10 or 4% of value
Over 9,000	$0.40 or 30% of value	$0.12 or 4% of value

Producers are allowed to exclude the amount paid in production taxes from the contract sales price and to exempt from the tax the first 20,000 tons produced each year. Almost all Montana coal is surface mined and its Btu value is high enough to be taxed at a rate of 30 percent of the contract sales price at the mine.

Coal tax revenues are currently allocated as follows:

1) *50% to the permanent coal tax trust fund.* In 1976 Montana voters approved a constitutional amendment to create a permanent trust fund with part of the coal severance tax revenue. The interest from this constitutional trust fund may be appropriated by the Legislature each session, but its principal is "inviolate" unless three-quarters of the members of each house vote for its appropriation.

2) *19% to the state general fund* where it can be used for various state programs.

3) *10% to the education trust fund* to support the state's public education system. Of the interest earned on this trust, 66.5% is paid into the state public school equalization program, 22.5% goes to the Board of Regents for the university system, and 10% is reinvested in the trust.

4) *8.75% to the local impact account.* The Montana Coal Board awards grants from this account to local governments to assist them in providing facilities and services needed as a direct result of coal development (see section 5.3.1.).

5) *5% to the state public school equalization aid program* which provides state aid to schools throughout the state, based on financial need and student enrollment.

6) *2.25% to the alternative energy research, development, and demonstration account.* DNRC awards grants and loans from this account to citizens, businesses, and government units for research, development, demonstration, and commercialization of alternative energy sources (see section 5.10.2.1.9.).

7) *2.5% to a parks acquisition and cultural projects trust fund.* One-third of the interest from this trust may be appropriated by the Legislature to protect works of art in the state capitol and for other cultural projects. The other two-thirds may be appropriated for the acquisition, operation, and maintenance of state parks, recreation areas, state monuments, and historic sites.

8) *1.25% to the renewable resource development account* for loans and grants to government units for projects that will develop Montana's renewable resources. After July 1, 1983, the percentage allocated to the renewable resource account will be reduced to 0.625 percent and a water development account will be added at a percentage of 0.625 percent.

9) *0.5% to the State Library Commission* to provide basic library services to all counties and to pay participation costs in information networks. The commission is currently passing these funds on to the state's six library federations to fund resource sharing, particularly interlibrary loan services.

10) *0.5% to counties for land planning projects.* Montana's 56 counties have used these funds for many projects: sanitation planning, mapping, subdivision review, and housing studies.

11) *0.25% to conservation district operations* to develop and carry out long-range programs that will result in the conservation of soil and water resources.

Coal production and tax collections are shown in table IV-1. The distribution of severance tax revenues is listed in table IV-2.

TABLE IV-1
COAL LICENSE AND SEVERANCE TAX COLLECTIONS ON THE PRODUCTION OF COAL, 1971 TO 1982

Fiscal Year	Coal Tax Collections	Net Taxable Tons
1971	$211,788	4,686,582
1972	$483,188	7,102,076
1973	$694,056	8,883,735
1974	$3,315,243	11,054,323
1975	$5,204,798	15,894,091
	Coal Severance Tax Enacted	
1976	$22,924,120	22,695,668
1977	$34,469,814	27,068,237
1978	$33,623,864	26,294,212
1979	$42,048,719	26,290,201
1980	$74,252,636	34,359,911
1981	$70,415,022	30,136,682
1982	$86,186,846	31,983,591

SOURCE: Montana Department of Revenue.

TABLE IV-2
COAL TAX DISTRIBUTION
FISCAL YEARS 1980, 1981, AND 1982

Accounting Entity	Fiscal Year 1980	Fiscal Year 1981	Fiscal Year 1982
Permanent Trust Fund	$23,024,226	$35,207,511	$43,093,423
Alternative Energy Research Development and Demonstration	1,514,667	1,760,376	2,055,346
Local Impact	9,030,162	6,161,314	7,541,349
Education Trust Fund	8,995,772	7,041,502	8,618,685
Coal Area Highway Improvement	1,786,708	—	—
State Equalization Aid to Public Schools	5,210,070	3,520,751	4,309,342
County Land Planning	521,007	352,075	430,934
Renewable Resource Development Bond	1,302,518	880,188	1,077,336
Acquisition of Sites and Areas	171,799	—	—
Parks Acquisition	2,089,639	1,760,376	2,154,671
State Library	383,568	352,075	430,934
Conservation Districts	—	—	99,325
General Fund	20,222,500	13,378,854	16,375,501
TOTAL	$74,252,636	$70 ,415,022	$86,186,846

SOURCE: Montana Department of Revenue.

Recent congressional attempts to limit state severance taxes, and the litigation challenging Montana's coal tax, are discussed in section 11.1.

4.1.5.2. Resource Indemnity Trust Tax
(Section 15-38-101 et seq. MCA)

The law establishing the resource indemnity trust account states that "it is the policy of this state to provide security against loss or damage of our environment from the extraction of nonrenewable natural resources."

The Department of Revenue administers the trust account. Monies for the account come from an annual tax of $25, plus one-half of 1 percent of the amount of the gross value of the product in excess of $5,000, levied on mining operations in the state. All nonrenewable merchantable minerals extracted from the surface or subsurface of Montana land are taxed.

Until the account reached $10 million, all net earnings were added to it. Now that the account exceeds $10 million, only net earnings may be appropriated until the account reaches $100 million. After $100 million, the Legislature may appropriate all net earnings and all receipts, but the balance may never fall below $100 million. The Board of Investments has discretion to invest all money paid into the account. The funds may be put to any use that will "improve the total environment and rectify damage" to it. As of June 30, 1982, this account contained $28,011,400, with unappropriated interest income totaling $392,739 in fiscal year 1982.

4.1.5.3. Gasoline License Tax and Special Fuels Tax
(Section 15-70-101 et seq. MCA)

A tax of 11 cents per gallon is levied on the sale of all diesel fuel, and 9 cents per gallon is levied on the sale of gasoline. Revenue from these taxes is earmarked for the Department of Highways for road construction and maintenance. A small allocation goes to the Department of Fish, Wildlife and Parks for developing and maintaining snowmobile and motor boat facilities.

Fuel distributors must be licensed by the Department of Revenue and submit regular sales reports to the department. The gasoline tax, which is included in the sales price of fuel, is collected by distributors and turned over to the department; the department then allocates the funds.

The special fuels (diesel) tax is paid directly by the consumer. A special fuel user may apply to the Department of Revenue for tax credits on fuels exported for use outside the state or which were not used to propel vehicles on public highways. The amount is first credited on any taxes then due and payable from the user; the state treasurer pays any remaining credit directly to the user.

4.1.5.4. Oil and Gas Severance Tax
(Section 15-36-101 et seq. MCA)

Every person producing or extracting oil or natural gas in Montana must pay a severance tax on the total gross value of marketable oil or gas produced. Oil is taxed at 5 percent of the gross value from each lease (6 percent after April 1, 1983). Natural gas is taxed at 2.65 percent of the gross value of production. To encourage new production, gas wells begun before 1983 are entitled to a three-year exemption from this tax, but only if the gas produced is distributed by a system serving a majority of Montana consumers, or at least 10,000 consumers in Montana.

4.1.5.5. Electric Energy Producers' License Tax
(Section 15-51-101 et seq. MCA)

This tax applies to anyone engaged in producing electricity for sale, exchange, or barter. The tax is levied on the basis of $.0002 per net kilowatt-hour produced in Montana. Federal generation is exempt. The revenue from the tax is allocated to the state's general fund.

4.1.5.6. Natural Gas and Oil Net Proceeds Tax
(Section 15-23-601 et seq. MCA)

Each person engaged in producing oil and natural gas must file an annual statement with the Department of Revenue stating the income derived from each well. Net proceeds are calculated by subtracting certain deductions from the gross income of the well. Allowable deductions include royalties and costs of production, including reclamation. The resulting figure is transmitted to the county assessor of the county in which the well is located and is subject to levies like any other property in the county.

4.1.5.7. Coal Gross Proceeds Tax
Section 15-23-701 et seq. MCA)

Every year, each person engaged in mining coal must file with the Department of Revenue a statement of the gross yield from each coal mine as derived from the contract sales price. The department transmits this statement to the county assessor of each county in which the coal mines are located. The gross proceeds become part of the property tax base and are subject to levies like any other property in the county.

4.1.6. Energy-Related Laws and Resolutions Enacted by the 1981 Montana Legislature

The 1981 Montana Legislature passed several laws and resolutions dealing with important energy-related issues. These are listed in table IV-3.

TABLE IV-3
ENERGY-RELATED LAWS AND RESOLUTIONS ENACTED BY THE 1981 MONTANA LEGISLATURE

BILL OR RESOLUTION NUMBER	DESCRIPTION	MONTANA CODES ANNOTATED	
	Coal and Uranium		
SB 62	Provides that fines, fees, and penalties paid to the Department of State Lands under the Strip and Underground Mine Siting Act and the Strip and Underground Mine Reclamation Act are credited to the general fund.	Amends:	82-4-113 82-4-240 82-4-241
SB 244	Amends the Montana Strip and Underground Mine Reclamation Act to comply with the federal Strip Mine Act and conditions of the Secretary of the Interior's approval of the Montana program.	Amends:	82-4-203 82-4-221 82-4-222 82-4-251 82-4-254
SB 367	Allows the sale to foreign persons of coal mined under leases from the Board of Land Commissioners by repealing an existing prohibition against such sales.	Repeals:	77-3-315
SB 422	Extends for two years the deadline to expend or encumber coal area highway reconstruction funds appropriated prior to June 30, 1979; requires the Department of Highways to prepare a special construction program for the reconstruction of deficient sections of highways in the area designated as the Eastern Montana Coal Field Economic Growth Center.	Amends:	Section 2, Chapter 540, Laws of 1977 90-6-210
SB 487	Continues the Coal Tax Oversight Subcommittee of the Revenue Oversight Committee.	Amends:	Section 2, Chapter 619, Laws of 1979
SJR 24	Urges the continuation of federal funding for the magnetohydrodynamics engineering test facility in Montana.		
HB 533	Removes the requirement that the value of state-owned coal be defined as the value before taxes for royalty purposes.	Repeals:	15-35-109
HB 828	Appropriates funds to the Governor's Office for the purpose of advocating the state's opposition to federal legislation that would prohibit or diminish the state's right to levy a 30 percent tax on coal mined within Montana's borders.		
	Conservation		
HB 237	Provides a credit against individual income tax liability for capital expenditures for energy-conserving purposes; eliminates the deduction from individual income tax liability for such expenditures; and applies to tax years beginning after December 31, 1980.	Amends: Enacts:	15-30-121 15-30-131 15-32-103 to 15-32-106 15-30-125 15-32-109

HB 509	Provides for the administration by the Department of Natural Resources and Conservation of the residential conservation service program mandated by the National Energy Conservation Policy Act of 1978.	Enacts:	90-4-501 to 90-4-504
	Energy Emergency Planning		
HB 16	Amends the governor's energy supply emergency powers to provide for regular monitoring of energy supplies and demand; monthly reports on petroleum supplies and consumption from refiners, primesuppliers, pipeline companies, and bulk pipeline terminals; provides for confidentiality of certain information submitted.	Amends:	90-4-301 90-4-302 90-4-305
HB 90	Amends the governor's energy emergency powers to extend an energy emergency condition to 45 days before automatic termination without legislative approval.	Amends:	90-4-310
	Facility Siting		
SB 376	Revises and clarifies the Montana Major Facility Siting Act to increase the exemption limit for an addition to a facility; revises the definition of a facility; exempts facilities subject to the Montana Strip and Underground Mine Reclamation Act; expands exemption criteria for the relocation, reconstruction, or upgrading of a facility; clarifies appellate review procedures; clarifies which decisions of the Board of Health and Environmental Sciences and the Department of Health and Environmental Sciences are conclusive; and requires the Board of Natural Resources and Conservation to waive the alternative site study, advance notice, and minimum adverse environmental impact requirements when a facility will be constructed in a county that has experienced severe unemployment problems because of a plant closure.	Amends:	75-20-104 75-20-202 75-20-211 75-20-216 75-20-218 75-20-220 75-20-304 75-20-406
	Mining		
HJR 21	Requests Congress to enact amendatory legislation to return to states the right to regulate or participate in regulating mine safety and health standards.		
HJR 40	Urges Congress to amend the Federal Land Policy and Management Act of 1976 to delete certain provisions relating to recording and abandonment of mining claims and certain enforcement provisions.		

	Oil and Gas		
SB 16	Requires oil and gas developers to give written notice to surface owners of intent to begin drilling operations; requires oil and gas developers and operators to compensate surface owners for damages caused by drilling and production operations; and allows such compensation to be made in annual installments under certain conditions.	Enacts:	82-10-501 to 82-10-508 82-10-511
SB 165	Provides for compensatory royalties in lieu of offset drilling on state oil and gas leases.	Amends:	77-3-427
SB 200	Allows for the deduction of federal excise taxes when computing oil and gas net proceeds tax; defines the term excise tax. Applies to tax years beginning after December 31, 1979.	Amends:	15-23-601 to 15-23-603 15-23-605
SB 356	Provides a single percentage rate of 5 percent to be used in computing the severance tax on petroleum collected during fiscal years 1982 and 1983 and 6 percent to be used in computing the severance tax on petroleum collected thereafter, and sets an applicability date.	Amends:	15-36-101
HB 370	Provides that the oil and gas net proceeds tax be levied only on oil and gas sold during the taxable year. Applies to taxable years beginning after December 31, 1979.	Amends:	15-23-602 15-23-603 15-23-605
HB 552	Extends for a two-year period the three-year exemption from the severance tax on oil and gas for natural gas produced from a well 5,000 feet deep or deeper.	Amends:	15-36-121
HJR 19	Urges state purchasing offices and the Department of Administration to purchase rerefined oil that meets quality specifications and directs the Department of Health and Environmental Sciences to study the feasibility of establishing a system for collecting used oil in the state of Montana.		
	Radioactive Waste		
HJR 42	Asks the governor to renegotiate an interstate compact with the State of Washington and other interested western states to provide for regional disposal facilities for low-level radioactive wastes.		

Renewable Energy

SB 139	Authorizes the sale of electricity from qualifying small power production facilities to public utilities under rates and conditions mutually agreed upon or established by the Montana Public Service Commission. Sale of electricity to electric cooperatives is authorized under terms and conditions mutually agreed upon and in compliance with the federal Public Utility Regulatory Policies Act.	Enacts:	69-3-601 to 69-3-604
SB 141	Allows the Department of Natural Resources and Conservation to award loans from the alternative energy research, development, and demonstration account for research, development, demonstration, and commercialization of alternative renewable energy sources, and allows loans through Montana's financial institutions for commercialization of such sources.	Amends:	90-4-101 90-4-104 to 90-4-106
HB 223	Reallocates the coal severance tax revenues by reducing the amount allocated to alternative energy research from 5 percent to 4.5 percent and allocating 1/2 of 1 percent of the tax to servation district operations.	Amends: Enacts:	15-35-108 76-15-530
HB 398	Generally revises the alternative renewable energy grants program; establishes criteria for granting awards for demonstration projects to require that these projects have good potential for producing savings of nonrenewable energy sources; requires the Department of Natural Resources and Conservation to monitor the grants; and allows the Environmental Quality Council to review and evaluate the program.	Amends: Enacts:	90-4-106 90-4-107 90-4-108
HB 569	Authorizes utility loans for installation of recognized nonfossil forms of energy generation systems in a dwelling on the same basis as utility loans for installation of energy conservation systems in a dwelling and raises the tax credit ceiling on such loans by utilities and financial institutions.	Amends:	15-32-107

Utilities

SJR 27	Requests the Legislative Audit Committee, in conjunction with its performance audit, to consider the current and ongoing public utility procedures and practices of the Public Service Commission to determine the impact thereof on both consumers and utilities. Requires a report of the study findings to the Legislature.		

HB 765	Provides for municipal regulation of municipally owned utilities; establishes maximum increases allowed; and requires reporting to the Public Service Commission and the Montana Consumer Counsel. Terminates July 1, 1983.	Amends: Enacts:	69-3-101 69-7-101 69-7-102 69-7-112 69-7-113 69-7-121 69-7-201
	Water		
SB 138	Provides for industrial development project financing of small-scale hydroelectric facilities with a capacity of 50 megawatts or less.	Amends:	90-5-101
SB 229	Provides for hydroelectric power generation at appropriate state-owned water projects; provides for lease of such projects for the purpose of power generation; specifically authorizes the construction and operation of such facilities by the department if no lease is negotiated; and establishes the method of sale of power generated at such facilities.	Enacts:	85-1-501 to 85-1-513
SB 243	Delegates authority to the Department of Natural Resources and Conservation to authorize diversions from the Yellowstone River Basin under Article X of the Yellowstone River Compact, Section 85-20-101 MCA, on behalf of the State of Montana, and provides for legislative review.	Enacts:	85-2-801 to 85-2-807
SB 409	Creates a long-term water development program that provides financial and administrative assistance to private, local, and state entities for water resource development projects and activities.	Amends: Enacts: Repeals:	15-35-108 15-38-202 85-1-102 85-1-301 85-1-332 90-2-101 90-2-111 90-2-124 17-5-701 to 17-5-719 86-1-601 to 86-1-622 85-1-333 85-1-334
HB 346	Provides for continued electrical power operations by irrigation districts.	Enacts:	85-7-1961
HB 846	Appropriates funds to the Department of Natural Resources and Conservation for the rehabilitation of the Tongue River Dam and approves the issuance of State of Montana coal severance tax bonds for a state-federal cost share of the Tongue River Dam rehabilitation construction costs.		
HB 861	Appropriates funds to study the feasibility of generating hydroelectric power at offstream sites in the Yellowstone River Basin.		

HJR 18	Urges the Federal Energy Regulatory Commission to relicense the Kerr Hydroelectric Project to the Montana Power Company.		
	Other		
HB 641	Provides for the agreement by the State of Montana to help form and participate in the Pacific Northwest Power and Conservation Planning Council and provides for the appointment of members to the council.	Enacts:	90-4-401 to 90-4-404

SB—Senate Bill
SJR—Senate Joint Resolution
HB—House Bill
HJR—House Joint Resolution

SOURCES: *Legislative Review 1981,* Montana Legislative Council, and *Natural Resource Issues in the 47th Legislature,* 1981, Montana Environmental Quality Council.

4.2. FEDERAL ENERGY LEGISLATION

The energy legislation summarized in this section was introduced in the U.S. Congress in 1981 and 1982. Although Congress considered other energy-related issues, the bills listed here were selected because of their significance to Montana. Most of the pending federal energy legislation died without action at the conclusion of the 97th Congress in December 1982. However, similar legislation will most likely be reintroduced in 1983.

4.2.1. Clean Air Act Amendments

Legislation to reauthorize the 1970 federal Clean Air Act was not enacted by Congress in 1982. Renewal of the act was delayed because of its controversial nature, and because of the lack of consensus in Congress on its major provisions. Congress must now start with new Clean Air Act amendment proposals in 1983; in the meantime, the current act will remain in force.

For the most part, the Senate's version of the Clean Air Act amendments would have made only minor changes in the 1970 law. One significant change, however, was a proposed amendment to address the problem of acid rain. The measure would have required utilities in 31 eastern and midwestern states to reduce their sulfur dioxide emissions by an aggregate 8 million tons per year over the next 12 years. This could substantially increase the market for western coal, which contains less sulfur than eastern coal.

Another proposed change concerned the"integral vista" provisions in the regulations that implement the act. The Clean Air Act protects the air in national parks and certain large, congressionally designated wilderness areas. This protection extends outside an area's boundaries when the view forms an"integral" part of one's enjoyment of the park or wilderness. The amendment would have allowed state governors to make recommendations regarding integral vistas and required the U.S. Environmental Protection Agency (EPA) to follow those recommendations as long as they were consistent with the act. Governors could suspend integral vista regulations when suspension was in the public interest. The amendment would have had implications for the air quality in Montana's two national parks and several wilderness areas.

Several issues that were debated in both houses would have affected Montana. One issue concerned the"prevention of significant deterioration," or PSD program, which establishes three air quality classes. Proposals were made to alter that program; these proposals included eliminating Class III areas, making Class II designations optional, and eliminating short-term Class I and Class II pollution increments. The PSD program is discussed in section 5.6.1.

In addition, several delegates from western states worked to change the act's "percentage reduction" requirement, which mandates that all coal-fired power plants install stack gas scrubbers, whether they burn high- or low-sulfur coal. Proposed changes would have either completely eliminated the sulfur dioxide percentage reduction requirement for all coal-fired boilers, or eliminated the requirement only for industrial boilers. The scrubber requirement originally was intended to give eastern high-sulfur coal a competitive edge. Eliminating the requirement could have a substantial impact on the market for low-sulfur western coal.

At the end of the 1982 session, significant differences remained between the Senate and House versions of the Clean Air Act amendments. Congressional action on a revised Clean Air Act will undoubtedly be resumed in 1983.

4.2.2. Coal Severance Taxes

In the last several years, Montana's coal severance tax has been challenged both in the courts and in Congress. The challenges have come from utilities and from states that consume electricity produced from Montana coal—particularly states in the northeast and midwest. Opponents of the severance tax have argued that taxes collected in energy resource states such as Montana are reflected in high power bills for consumers throughout the country. Montana and other energy resource states have countered that even high severance taxes comprise only a small portion of a consumer's power bill and that the tax is a necessary means of mitigating the impacts of rapid energy development on local communities and the state. (See section 11.1. for a more complete discussion of this issue.)

Two bills to restrict state severance taxes were introduced in Congress in 1981. A Senate bill would have limited to 12.5 percent all severance taxes on coal from federal and Indian lands destined for interstate commerce. A similar bill introduced in the House would do the same for all coal. Both bills died without action in the 97th Congress.

In May 1982, five members of the 200-member Northeast-Midwest Congressional Coalition introduced a bill in the House to cap state energy resource taxes and impose a new oil tax. The bill, called the National Crude Oil Profit-Sharing Act, would have imposed a 30 percent tax on domestically produced crude oil. Three-quarters of the revenues from the tax would have been used to reduce federal budget deficits; the remaining quarter would have gone to the states for economic development and energy efficiency improvements. The bill also would have frozen state energy resource taxes at 1978 levels. Montana officials estimated that the measure would have cost the state of Montana $68 million in fiscal year 1982 in coal, oil, and natural gas severance taxes.

4.2.3. Coal Leasing Act Amendments

Bills were introduced in the House and Senate in 1982 to relax several requirements in the Federal Coal Leasing Act Amendments of 1976. Proponents of the bills claimed the current law discourages production. The House and Senate versions were identical except for a provision in the Senate bill that would have extended the diligent development period for coal leases dedicated to synfuel projects from 10 to 15 years.

Other proposed changes to the act included the following:

— deletion of the prohibition on issuing leases for any mineral covered by the Mineral Lands Leasing Act to coal lessees who have held coal leases longer than 10 years (starting in 1976) without producing coal in commercial quantities;

— addition of a provision allowing payment of advance royalties in lieu of diligent development and continued operation requirements (this would allow a lessee to keep a lease even if coal production ceased);

— deletion of the requirement that all mines in a "logical mining unit" be contiguous;

— deletion of a requirement that all reserves in a logical mining unit be mined out in 40 years or that 2.5 percent of the reserves be mined per year;

— deletion of the requirement that mine and reclamation plans be submitted within three years of lease issuance;

— addition of a provision giving the Secretary of the Interior the power to exempt coking coal from the diligent development requirements.

Although this legislation was not acted on in 1982, it is expected that Congress will introduce similar bills in 1983.

4.2.4. Coal Slurry Pipelines

For the fourth time in 10 years, Congress considered legislation that would grant coal slurry pipelines the federal power of eminent domain—that is, the power to condemn private property to acquire rights of way. Coal slurry pipelines are a means of transporting crushed coal in a liquid medium, usually water. (See section 11.2. for a more complete discussion of coal slurry and related issues in Montana.)

Proponents of the bill, including coal companies, utilities, and pipeline operators, claimed the network for transporting and distributing coal must be expanded beyond the current reliance on railroads. They also said that other transportation systems such as railroads, oil and gas pipelines, and electric transmission lines have been granted the federal power of eminent domain. Farmers, conservationists, and some western representatives opposed the bill on the grounds of states' rights and limited water supplies.

A July 1982 U.S. Supreme Court ruling will affect the issue. The court ruled that ground water is an article of interstate commerce and declared a Nebraska law prohibiting its export to be unconstitutional. The court may grant some leniency, however, to "demonstrably arid" states. Although the Reagan administration has been opposed to granting coal slurry pipeline companies the federal power of eminent domain because of fear of interfering with states' rights, there have been recent indications that the president may reconsider his opposition.

Railroads historically have been strong opponents of such legislation, claiming it would give slurry pipelines an

unfair competitive advantage. The refusal of railroads to grant rights of way for pipelines along railroad easements has been a major impetus for such legislation, as railroads now block many key pipeline routes.

A Senate committee passed eight amendments to the bill, which proponents claimed would protect states' rights. Among them was an amendment requiring that pipelines conform with all state laws except those that expressly forbid pipelines. An additional amendment was proposed that would allow states to deny water permits to interstate users or to curtail use of their water once permits have been issued.

Although the bill had substantial support, Congress did not pass it in 1982. Coal slurry legislation will undoubtedly be reconsidered in 1983.

4.2.5. Energy Impact Assistance

The Energy Community Self-Help Act was introduced in 1981 to help communities affected by large-scale energy development. The proposed legislation would have provided an incentive to energy companies to prepay estimated taxes and fees so that impacted communities would have the benefit of their future tax base in the present, when it is most needed. The legislation would have removed a stumbling block to prepayment found in the Tax Code by allowing an energy company to prepay its taxes and expend those payments immediately rather than waiting until the tax liability is actually due and payable.

The bill also offered incentives for energy companies to do more to mitigate the impacts of their development projects. One of its provisions said that when a company contributed land or money for community purposes, such as parks or buildings, those contributions could be treated as tax deductible, charitable contributions.

Although energy impact assistance legislation failed to pass in 1982, a similar bill may be reintroduced in 1983.

4.2.6 Indian Mineral Development Act of 1982

In 1982 Montana Senator John Melcher sponsored a bill to give Indian tribes greater flexibility in the way they are allowed to develop their energy and mineral resources. The bill was signed into law by the president in late 1982.

The law allows tribes to enter into new forms of agreements with private developers, such as joint ventures, service contracts, and production sharing. Such arrangements allow tribes to participate directly in mineral extraction and to have equity partnerships in mining and drilling corporations. Under the 1938 Indian Mineral Leasing Act, mineral development on Indian lands could take place only by lease arrangement; the law prohibited Indians from developing resources through joint ventures and other commercial arrangements. The old law also allowed leases to continue indefinitely if the resource was produced in "paying quantities"—a provision that, in effect, froze royalty prices at rates that were effective when the lease was first issued.

The Indian Mineral Development Act makes tribal contracts subject to the approval of the Secretary of the Interior, who has 180 days to approve an agreement. If he does not approve a contract, he must present his reasons to the tribe; the tribe could then appeal the decision to a federal court. The law sets criteria for the secretary to use in approving or disapproving a proposed Indian minerals agreement, including the potential economic returns to the tribe, the environmental, social, and cultural effects on the tribe, and provisions for resolving disputes between parties to the agreement. The new law also requires the secretary to review, within 90 days, any existing minerals arrangement between tribes.

The measure will have significant implications for energy resource development on Indian reservations in Montana (see chapter 10).

4.2.7. Energy Emergency Preparedness Act of 1982

In August 1982, the president signed into law the National Energy Emergency Preparedness Act. This law is a weakened version of a bill the president vetoed in March 1982. That bill was an attempt by Congress to replace the Emergency Petroleum Allocation Act—a law passed during the 1973 oil embargo empowering the president to impose price and allocation controls on crude oil and petroleum—which expired in the fall of 1981. The original bill would have required the president to submit to Congress an allocation and pricing plan for use during an acute curtailment of oil supplies. The president vetoed it because the current administration advocates a marketplace determination of the price and allocation of petroleum products during a supply disruption. Congress, concerned that the market would be unable to cope with a severe fuel shortage, subsequently passed the Energy Emergency Preparedness Act. The act required the president to submit to Congress by November 15, 1982, a report describing the authorities under existing laws that are available to the president during a severe shortage, and to submit a similar report by December 31, 1982, detailing the procedures to be used to implement such authorities.

The law also requires the U.S. Department of Energy (DOE) to report to Congress by August 1983 on the impacts of relying on the marketplace to allocate and set prices for oil supplies during times of shortage. The law sets minimum fill rates for the Strategic Petroleum Reserve (SPR), clarifies DOE authority to acquire interim oil storage facilities, exempts oil companies from anti-trust action while they are participating in agreements under the International Energy Agency, and directs DOE to submit a study by December 31, 1982, on the potential for establishing a Strategic Alcohol Fuel Reserve.

4.2.8. Natural Gas Decontrol

The Natural Gas Policy Act of 1978 provided for phased decontrol of newly discovered natural gas through 1985, when all controls are to be lifted. However, the act left some types of gas permanently under price controls. The most significant is "old" gas, or gas discovered prior to 1977. Old gas constitutes about half the nation's gas supply. Gas producers and other proponents of decontrol want controls on old gas lifted. They also want to speed up the process of decontrolling "new" gas.

Natural gas decontrol was a campaign pledge of the current administration, which advocates allowing the marketplace to determine rates. The administration was expected to introduce decontrol legislation during 1982, but later dropped its plans. Although a decontrol bill was introduced in Congress in 1982, it died without support from the administration.

Subsequently, the Federal Energy Regulatory Commission (FERC), which sets interstate natural gas rates, began an investigation into whether it should use its power to allow higher rates for old gas. FERC's inquiry drew sharp criticism from several consumer groups, which are worried about the impact sudden price increases will have—particularly on low-income and elderly consumers. It also drew criticism from many members of Congress, who accused the administration of trying to implement decontrol through "back-door" tactics.

Although Congress did not act on the decontrol issue in the 1982 session, it is expected to be revived in 1983.

4.2.9. Nuclear Waste Policy Act of 1982

On January 7, 1983, the president signed into law the Nuclear Waste Policy Act of 1982. This legislation establishes a comprehensive, high-level nuclear waste management program.

The new law requires the Secretary of Energy, after consultation with the governors of affected states, to nominate at least five sites that are considered suitable as potential locations for the first waste disposal repository; all site nominations must be accompanied by an environmental assessment. Before January 1985, the secretary must recommend three of the five nominated sites for further evaluation. One of these sites would have to be chosen as the location for a waste repository by 1987. A second site would have to be chosen by 1990.

States have the right to veto the location of a repository within their borders; the veto is effective unless both houses of Congress override it. The law also provides for the construction, operation, and maintenance of a test and evaluation facility. In addition, it authorizes the federal government to own and operate interim storage facilities for spent civilian nuclear reactor fuel. Revenue to finance the waste storage and disposal program will be generated through charges on the utilities that generate nuclear waste and spent fuel.

The states were heavily involved in congressional deliberations over nuclear waste legislation in both the 96th and 97th Congresses. The states were concerned that the federal government would pursue the repository development process without adequately addressing state concerns. In several of the bills introduced in the 97th Congress, environmental analysis of potential sites was very limited, state veto powers were not effective unless supported by Congress, and transportation factors were not to be considered during site selection. However, in the final legislation that was enacted by Congress, the states were reasonably successful in securing broader state participation and greater environmental analysis in the repository development process.

In a related issue, a bill was introduced in Congress in September 1982 to give congressional consent to the Northwest Low-Level Radioactive Waste Management Compact. The compact was entered into by the northwestern states following passage of the National Low-Level Radioactive Waste Policy Act, which assigned responsibility to provide for the safe disposal of low-level wastes to the states and authorized interstate compacts as a mechanism for developing cost-effective regional sites.

The states of Alaska, Hawaii, Idaho, Oregon, Utah, Washington, Wyoming, and Montana can participate in the compact. The Northwest compact would exclude disposal of out-of-region low-level wastes within the compact region after 1986. The bill reserves for Congress the right to alter, amend, or repeal the compact.

4.2.10. Wilderness Mineral Leasing

Under the Wilderness Act of 1964, the nation's wilderness areas outside of national parks are open for mineral exploration until the end of 1983. After that, no new exploratory leases can be issued, although claims filed before the deadline can be pursued. Until 1981, it had been government policy to refuse to issue leases in wilderness and wilderness study areas. The current administration, however, interprets the law to mean the government may not refuse mineral leasing in such areas solely on wilderness protection grounds. The issue came to a head in 1981 when the federal government considered permitting controversial seismic blasting in Montana's Bob Marshall Wilderness.

At the request of the House Interior Committee, the Secretary of the Interior subsequently imposed a moratorium on wilderness leasing until the end of 1982 to allow Congress to clarify the law. The secretary stated that if Con-

gress failed to act by the end of the moratorium period, it would be considered a mandate to lease.

In response to the moratorium, the Wilderness Protection Act was proposed. It would "immediately and permanently withdraw lands in the National Wilderness System (except for lands in Alaska) from oil, gas, oil shale, coal, phosphate, potassium, sulfur, gilsonite and geothermal leasing." Forest lands recommended for wilderness designation by Congress would be withdrawn until Congress determined otherwise or until forest plans were revised. Wilderness study areas would be withdrawn for the period designated by Congress. Forest lands identified for further planning would be withdrawn until one year after implementation of an initial forest plan. The bill would not affect lands in Alaska, BLM wilderness study areas, or any lands released by Congress. The bill also would not affect hardrock exploration and development permitted until 1984 under the 1964 Wilderness Act. It provided limited authority for the president to reopen leasing in a withdrawn area, but only with congressional approval.

The Wilderness Protection Act passed the U.S. House of Representatives overwhelmingly in August 1982, but it was not acted on during December's lame duck session of Congress. However, a similar measure, attached to the U.S. Department of Interior appropriations bill, was enacted and signed into law. That measure prohibits the department from spending any funds to process mineral leasing applications in designated wilderness areas and certain wilderness study areas through the end of the federal fiscal year (September 30, 1983). That leaves a three-month window between October and the end of December 1983 when the Wilderness Act deadline becomes effective and the department could theoretically issue leases. However, the Secretary of the Interior has said that he would let the December 1983 moratorium take effect without trying to issue more leases.

MONTANA STATE GOVERNMENT ENERGY-RELATED PROGRAMS

This chapter summarizes the state government programs and agencies that administer Montana's energy policies and statutes.

5.1. DEPARTMENT OF ADMINISTRATION

The Department of Administration manages two programs in new building construction and state purchasing practices that involve energy conservation.

The Building Codes Division enforces the Code for Energy Conservation in New Building Construction, which is part of the State Building Code (see section 4.1.4.9.). The purpose of the code is to regulate the design of new buildings for adequate thermal resistance and low air leakage, and to provide for the design and selection of mechanical, electrical, and illumination systems and equipment that will enable the effective use of energy in new building construction. Use of the energy code is mandated for all municipalities and counties enforcing the building code. In counties, the code applies to all buildings except residential buildings containing less than five dwelling units or their attached-to structures, farm or ranch buildings, and any garage or storage structure used solely for the owner's private use. In municipalities, the energy code applies to all buildings, including single-family dwellings.

The Building Codes Division and DNRC's Energy Division have sponsored seminars for local code officials to help them better understand the energy code.

The Purchasing Division has developed procedures to ensure that more energy-efficient products are purchased by state government. The Purchasing Division is responsible for procuring the products, materials, and services required by the state's departments, institutions, and postsecondary schools.

Energy conservation is accomplished in the procurement function by a bid award process. The lifetime energy cost of a product and its initial cost are combined to determine which competing model will give the required performance at the lowest cost during the useful life of the product. This award process, known as Life Cycle Cost Analysis, is currently used for purchasing automobiles, trucks, electrical appliances, and lamps.

The Purchasing Division has conducted seminars for state agency personnel that address improving both the procurement process and energy conservation.

5.2. DEPARTMENT OF AGRICULTURE

The 1979 Legislature's passage of SB 520 established a food and fuels program in the Department of Agriculture by amending the Wheat Research and Marketing Law (Section 80-11-221 MCA). The program's $200,000 annual appropriation comes from the growers' self-imposed annual assessment on wheat and barley.

During the period July 1, 1979, through June 30, 1981, the program funded projects for alcohol plant construction, feasibility studies, and ethanol production research.

The 1981 Legislature amended the statute again by deleting the word "fuels" from the enabling legislation and substituting "alcohol by-products and feeds" in its place. Grant program efforts now are concentrated on researching the uses of the distiller's dried grains for animal feed and human food, as well as promoting these products. Extensive research in these areas is currently underway at Montana State University and through a private contractor.

According to law, this program will end on June 30, 1983.

5.3. DEPARTMENT OF COMMERCE

Created by the 1981 Legislature, the Department of Commerce (DOC) has retained some of the energy assistance programs previously administered by the now-defunct Department of Community Affairs. Weatherization and fuel bills assistance programs were transferred to the Department of Social and Rehabilitation Services (see section 5.14.).

The department's Economic and Community Development Division administers several energy-related programs. The Impact Assistance Section provides staff support for the Montana Coal Board and the Hard Rock Mining Impact Board, and makes limited technical assistance available to communities with current or potential impacts from energy development. At present, the technical assistance program is financed by grants from the Montana Coal Board and the Farmers Home Administration (FmHA) 601 program, and by state general funds. The FmHA 601 program, which is being terminated, has been a source of financial assistance to eight Montana counties experiencing impacts from coal development. It has provided assistance for growth management planning and site acquisition, as well as development of public services and facilities.

The Board of Housing, also a part of DOC, allocates federal funds to local lending institutions for low-interest home mortgages to qualified low-to-moderate-income persons. The program is targeted to areas of economic distress. The board has been working for some time to convince the U.S. Secretary of the Treasury and Department of Housing and Urban Development that the program should be used, in part, to address the severe housing shortfall in the state's energy resource development areas, where rapid growth creates a greater demand for housing, increases housing costs, and outstrips the financial resources of local lending institutions.

The following two subsections describe the activities of the Montana Coal Board, a unit within DOC, and the energy-related aspects of the Montana Community Development Block Grant Program, which also is administered by DOC.

5.3.1. Montana Coal Board

The Montana Coal Board, which is composed of seven gubernatorial appointees, administers the sections of Montana's coal development impact legislation (see section 4.1.2.) that established the coal impact grant program "to assist local government units which have been required to expand the provision of public services as a consequence of large-scale development of coal mines and coal-using complexes." The program is funded by 8.75 percent of the coal severance tax revenue.

Since its inception in July 1975, the board has awarded 117 grants totaling $35.2 million and tabled or denied applications for $40.7 million. About 90 percent of the awards fund public facilities and capital equipment such as water and sewer systems, school construction and remodeling, fire and law enforcement vehicles, and local government service buildings. Awards also have funded public services such as juvenile probation, mental health programs, drug and alcohol counselors, and law enforcement.

Any political subdivision of the state with adverse impacts from coal development may be an eligible applicant, including incorporated cities and towns, counties, school districts, and special districts. Tribal councils are not political subdivisions of the state and are, therefore, not eligible.

The board's review process for grant applications includes departmental staff review, evaluations of local tax systems, review by other affected agencies, and discussions with local proponents of each proposed project. The board's enabling legislation mandates that "grants shall be awarded on the basis of: 1) need; 2) degree of severity of the impact from coal development; 3) availability of funds; and 4) degree of local effort in meeting these needs."

The board evaluates the degree of local effort, including bonding capacity and millage levies, except when planning grants are being considered. After awarding a grant, the board contracts with the local governing body. Up to 10 years of reasonably anticipated severance tax revenues may be legally committed by the board; in general, however, it does not award grants in excess of the anticipated revenues of the current fiscal year. At least 50 percent of the available funds must be awarded to local units that have experienced or could experience a 10 percent population growth during any three-year period since 1972 as a result of coal development.

The purposes of the local impact assistance program are to enable local governments to provide the additional services and facilities required because of coal development and to spare local resident taxpayers inequitable financial burdens. Assistance is especially needed in planning for anticipated impact, for front-end costs, and in jurisdictions facing continuing public finance inequities (that is, where the jurisdiction that incurs the public costs of impact is not the jurisdiction that benefits from the increase in taxable valuation).

In March 1982, the Montana Coal Board initiated a study of human service needs in Rosebud, Big Horn, Treasure, Powder River, Custer, Wibaux, and McCone counties. The final report, issued in October 1982, includes: 1) descriptions of the health and human-service needs of each county as reported by residents; 2) community concerns over possible future coal development; 3) summaries of statistical data compiled on each county; 4) estimates of future health and human-service needs in the designated counties; and 5) a description of several decision-making tools for reviewing health and human-service proposals.

The Montana Coal Board provided a grant to the Board of Crime Control to conduct a study of the effects of mining and energy development on crime and social problems. Five areas were included in the study: Colstrip in Rosebud County; Sidney in Richland County; Anaconda in Deer Lodge County; Libby in Lincoln County; and Challis in Custer County, Idaho. The study concluded that natural resource development may have fewer effects on crime and other social problems than has been generally thought. The final study report, *The Impact of Natural Resource Development on the Criminal Justice System,* was completed in April 1983.

In December 1981, the Montana Coal Board approved a $98,000 grant to Cascade County to finance a comprehensive study of the social and economic impacts that would be caused by construction of the proposed Salem coal-fired power plant (see section 3.1.2.3.). The study is scheduled to be completed in May 1983.

5.3.2. Montana Community Development Block Grant Program

The Community Development Block Grant (CDBG) Program is a federal grant program for which the state assumed administrative responsibility from the U.S. Department of Housing and Urban Development in fiscal year 1982. The purpose of the program is to grant monies to local governments for economic development, public facilities, and housing.

One of the eligible activities cited in the CDBG program has an energy focus. CDBG monies may be used to fund activities necessary in developing a comprehensive communitywide energy use strategy. The CDBG program encourages grant applications that propose activities fostering energy conservation. A housing application, for instance, would receive a higher "ranking" by including a plan that demonstrated a high commitment to reducing household energy consumption.

5.4. DEPARTMENT OF FISH, WILDLIFE AND PARKS

The Department of Fish, Wildlife and Parks (DFWP) is responsible for managing Montana's wildlife, state recreation lands, and state parks. Department policy is set by the Montana Fish and Game Commission, which consists of five gubernatorial appointees from five districts established by law.

DFWP controls many types of land in Montana, including game management areas, fishing access sites, state parks, monuments, and recreation areas, and specialized facilities such as fish hatcheries. DFWP authority over these lands exists under a number of arrangements, including patent, deed, lease, easement, agreement, or withdrawal. The total land area administered by the department as of August 1982 was approximately 322,000 acres; this includes 275,000 acres of wildlife management lands, 17,582 acres of fishing access sites, and 28,000 acres of state parks and monuments.

In 1978 the Fish and Game Commission established an oil and gas leasing policy for lands controlled by DFWP. The commission policy applies only to lands for which DFWP owns both surface and mineral rights. When the mineral rights are owned by another party, the lease review process must be negotiated. Applications for seismic permits or for oil and gas leasing on lands controlled by the department are considered according to the following procedures:

— Applications for seismic exploration activities that cause no surface disturbance other than that necessary for seismic tests must be accompanied by a preliminary environmental review (PER) prepared by DFWP. A permit, if granted by the department and approved by the Fish and Game Commission, implies no right to engage in any activities not described in the PER and is for a specified period of time only;

— Applications for leases for the purposes of exploratory well drilling or development must be accompanied by a complete environmental impact statement (EIS) prepared by DFWP. Applicants are responsible for the cost of EIS preparation and the statement must include all necessary stipulations to ensure that oil and gas drilling and extraction will not adversely affect the purposes for which DFWP properties were acquired. After review of the application, EIS, and special stipulations, the department may or may not grant the lease, subject to commission approval.

On matters relating to oil and gas leasing other than those affecting the fish, wildlife, and recreational resources, the commission follows the rules and regulations promulgated by the Montana Department of State Lands.

To date, DFWP has granted no major surface leases for any property controlled by the Fish and Game Commission. However, several seismic exploration leases have been issued. A programmatic EIS on the effects of leasing department lands for oil and gas exploration and development was issued in January 1983.

In the case of major energy or other types of facilities and mines, DFWP reports on their impact on fish and wildlife resources. DFWP also advises other state and federal agencies on the potential impacts of energy-related

activities, such as coal leasing and oil and gas development. When the Montana Department of State Lands (DSL), for example, considers leasing school trust lands or other lands it controls for oil and gas development, DFWP is asked to make recommendations concerning the lease's potential impact on wildlife. DSL may or may not attach DFWP's recommendations to the lease.

DFWP is currently working cooperatively with the U.S. Forest Service, U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, the Nature Conservancy, and the oil and gas industry to study the effects of oil and gas exploration and development on wildlife in the eastern slope Rocky Mountain Front area. This project is a composite of several separate intensive baseline studies on the distribution, numbers, habitat, etc., of grizzly bears, mountain goats, bighorn sheep, elk, mule deer, raptors, and nongame birds along the Rocky Mountain Front from Glacier National Park to Rogers Pass. The study also will document impacts of oil and gas activities on these animals, with the purpose of developing guidelines to mitigate or eliminate impacts. DFWP will publish annual reports on these studies. The composite study will take about 10 years to complete.

DFWP also has been involved in studying the impacts proposed hydroelectric projects in Montana would have on fisheries. Recent studies have included:

— monitoring spawning runs and the recruitment potential of tributaries to Hauser and Holter lakes, as related to proposed peaking power operations at the Canyon Ferry and Hauser dams on the Missouri River;

— coordinating with a cooperative fisheries study of the area below Hauser Dam. The study is being conducted by Montana State University;

— assessing the impacts of microhydroelectric dams (dams that generally produce between 100 kilowatts and 5 megawatts of power) proposed for the Swan River drainage;

— assessing several of the nearly 70 permit applications for microhydro projects in the Kootenai and Flathead national forests;

— conducting instream flow studies related to a hydropower project proposed for the Marias River (see section 3.2.1.7.);

— assessing wildlife impacts associated with the Montana Power Company's proposed Carter Ferry project, a 75- to 100-megawatt dam proposed for the Missouri River below Great Falls (see section 3.2.2.1.);

— studying the impact of water released from the Hungry Horse Dam on kokanee salmon (see section 3.2.1.3.);

— evaluating the fish population in the Missouri River below Fort Peck Dam to provide data for analysis if peaking power and water reregulation are considered for the facility (see section 3.2.1.2.).

DFWP has worked with Montana's representatives to the Northwest Power Planning Council (see section 6.3.) to develop Montana's recommendations for the council's fish and wildlife plan, which was adopted in November 1982.

In 1981 DFWP studied the impacts of energy development on outdoor recreation in southeastern Montana.

5.5. GOVERNOR'S OFFICE

The governor is ultimately responsible for implementing the laws of Montana, directing all executive branch actions, and recommending policy to the Legislature for its consideration. Specifically, the governor has contributed to Montana's energy policy by:

— defending Montana's coal severance tax and working to influence federal energy tax policies by chairing the Western Governors' Policy Office (WESTPO) Committee on Severance Taxes (see section 6.5), and opposing federal legislation that would preempt state and local resource tax laws;

— opposing the federal administration's decision to terminate funding of the magnetohydrodynamics (MHD) program (see section 5.10.2.2.3.);

— opposing amendments to the federal Nuclear Waste Policy Act, which could have preempted a section of the state's Major Facility Siting Act that pertains to the disposal of radioactive waste material;

— acting as chief spokesman and plaintiff in State of Montana legal action against the Bonneville Power Administration (BPA), with the object of enforcing state siting laws regarding BPA's electric transmission lines (see section 3.3.1.3.);

— cosponsoring a resolution through WESTPO stating the group's intent to pursue, through legislative and administrative means, broad-based, shared decision making on all federal mineral leasing and land-use decisions;

— introducing a resolution dealing with oil and gas royalty management, collection, and accounting to the National Governors' Association and working with congressional committees to enact a law to accomplish the purposes of this resolution.

The governor proposed amendments to the 1977 Energy Supply Emergency Powers Act (see section 4.1.3.). The 1981 Legislature passed HB 90, which extends the duration of an energy emergency from 14 days to 45 days before automatic termination without legislative approval, and HB 16, which provides for monitoring energy supply and demand on a regular basis.

The governor worked with the U.S. Environmental Protection Agency to create a federally funded program for an energy and resource development permit directory. This

directory contains all federal, state, and local government permit requirements pertinent to Montana. A draft of the directory was issued in July 1982; the final report was published in November 1982. Under the federal grant, the Governor's Office hired a permit coordinator to develop the directory and work with energy development companies, helping them to comply with Montana permitting procedures as quickly as possible.

5.5.1. Montana Natural Resource Council

In September 1981, a first-of-a-kind state-federal council was formed to discuss natural resource issues of mutual concern to both levels of government.

The Montana Natural Resource Council consists of the governor of Montana, the U.S. Forest Service regional forester, and the state director of the U.S. Bureau of Land Management. The council was born out of the recognition that Montana will be a focal point for future energy development, conversion, and transmission, and that, because 30 percent of the land in Montana is federally owned, there must be close state-federal cooperation in resource management within the state. The governor has expressed his concern that Montana needs more than just a consultatory role in federal land management programs; the state needs a "full concurrent jurisdiction" role.

The Natural Resource Council meets at least three times a year to work on joint positions regarding natural resource issues. Topics discussed by the council to date include oil and gas exploration, wilderness designation, and utility corridor planning.

The council has developed a draft plan for determining the suitability of locations in Montana for future major utility and transportation corridors—pipelines, powerlines, communications facilities, railroads, and highways. This report reviewed the existing situation in the state and recommended continued intergovernmental cooperation and public participation in corridor planning and right-of-way siting.

5.5.2. Canadian Energy Development

The governor has represented Montana in proceedings concerning proposed Canadian energy developments near Montana's border. These include the proposed Cabin Creek coal mine in British Columbia and the Poplar River coal-fired generating plants in Saskatchewan. These proposals are discussed in section 11.7.

5.6. DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

5.6.1. Air Quality Bureau

The Air Quality Bureau is responsible for administering the Montana Clean Air Act and implementing clean air programs and plans mandated by the 1970 federal Clean Air Act. The federal act was amended in 1977 in a number of significant ways, including selection of a new target date, 1982 (formerly 1975), for bringing all areas of the nation into compliance with the federal standards for all regulated airborne pollutants. Regulated pollutants include carbon monoxide, particulates, nitrogen oxides, hydrocarbons, lead, ozone, and sulfur dioxide. The federal Clean Air Act required all states to prepare plans, known as State Implementation Plans (SIPs), for attaining and maintaining federal air quality standards.

Nonattainment. All areas not in compliance with the federal standards are nonattainment areas. The 1977 amendments required each state to submit SIP revisions to the U.S. Environmental Protection Agency (EPA) by January 1, 1979, outlining a proposed strategy for bringing the areas into compliance. Colstrip, for example, is a nonattainment area for particulates. Other nonattainment areas in Montana pertain to carbon monoxide, sulfur dioxide, and particulates and include, for one or more of these pollutants, Billings, Missoula, Great Falls, Butte, East Helena, Columbia Falls, and Laurel. The entire state is presently unclassified for ozone because of lack of data. The EPA has approved, or conditionally approved, substantial portions of Montana's revised SIP; only minor elements are still awaiting EPA action.

In January 1983, EPA released a preliminary list of areas that did not meet the December 31, 1982, deadline for compliance with federal standards. In Montana, the list included Billings, Butte, Great Falls, and Missoula. Various federal sanctions (e.g., withholding federal highway funds) could be applied; however, all areas not in compliance will be given the opportunity to respond to EPA's findings before sanctions are imposed.

Prevention of Significant Deterioration. Prevention of Significant Deterioration (PSD) standards apply to all areas that are in compliance with federal standards for particulate matter and sulfur dioxide. PSD establishes three air quality classes. Class I is the highest quality and allows only a small incremental increase in pollution beyond existing conditions in the area at the time of designation. The bulk of the United States was designated Class II, which

allows for well-planned growth and some additional pollution, although within limits that are well below the standards. Class III applies to areas of industrial growth and permits incremental increases in pollution up to, but not exceeding, the standards. Since 1974, Congress, the states, and Indian tribes have been eligible to petition EPA to classify areas Class I and Class III, providing that various specified procedures are followed. Wildernesses and certain other specially managed areas in existence before August 1977, including Glacier and Yellowstone national parks, received automatic Class I designations. The Northern Cheyenne Tribe requested and received Class I status for its reservation in mid-1977. The Confederated Salish and Kootenai Tribes received Class I designation for their reservation in the summer of 1982. The Fort Peck tribes have prepared a Class I request for their reservation; EPA could grant a redesignation request in early 1983.

After March 1979, the state was to assume responsibility for administering the PSD program. Changes at the national level, however, made the Montana program unacceptable. In November 1982, the state Board of Health adopted a new set of rules that were designed to meet the new federal criteria. Those rules set a statewide standard for sulfur dioxide and adopt an "impact area" standard for airborne particulates. The rules set a "baseline date"—a point in time from which to begin judging whether air quality is deteriorating. The baseline date for sulfur dioxide will be March 26, 1979, and, for particulates, August 7, 1977. The previous rules had set statewide standards for both sulfur dioxide and particulates. Several Montana environmental groups argued in favor of a statewide baseline date, while representatives of Montana's major coal mining companies argued in favor of a less stringent impact area baseline date. Coal mine operators were concerned that a statewide baseline date would prevent them from getting the air quality permits necessary to mine. In May 1983, the Air Quality Bureau was given authority by EPA to administer the PSD Program in Montana.

Congress is in the process of reauthorizing the federal Clean Air Act (see section 4.2.1.), which could mean that the state will be required to revise its PSD rules at some time in the near future.

The Air Quality Bureau also reviews projects covered by the Major Facility Siting Act (MFSA) for compliance with state and federal air quality standards. See section 4.1.1.1. for a full discussion of the MFSA.

Montana Ambient Air Quality Standards. Because the Board of Health and Environmental Sciences had determined that Montana's air standards (adopted in 1967) were unenforceable because the word "standards" was interpreted to mean "guidelines" rather than regulations, the Air Quality Bureau conducted a two-year study of the state's standards. After extensive public hearings, new air quality standards were proposed and adopted with some modifications in July 1980.

The new rules are generally more stringent than the federal EPA standards and they include a number of provisions for which there are no EPA standards, such as visibility (Class I areas only), hydrogen sulfide, and fluoride. Public interest groups argued that the 1967 standards, particularly with reference to strip mines and coal conversion facilities, were not adequate to protect the health and environment of Montana's citizens. Affected industries, on the other hand, pressed for adoption of the less stringent federal standards. A suit filed by several industries contesting the enforceability of the ambient air standards is still pending.

Emission Reduction Credit. The Air Quality Bureau is currently studying the possibility of implementing an "emission reduction credit" program in the state. This program would allow industrial facilities to buy, sell, and bank portions of their state-approved pollution allowances. The emission reductions credit (ERC) would apply only to facilities that have reduced their air pollution emissions below levels required by state regulations.

The program also could be applied within one facility as an alternative means to achieve mandatory emissions reductions. For example, a refinery with three stacks could choose, at the company's discretion, to put emission controls on just one or two of its stacks, rather than all three of its stacks, as long as the refinery's total pollutant output did not exceed state standards.

Only facilities within the same general geographic area would be allowed to buy or sell an ERC from one another, so that pollution limitations for any one area would not be exceeded.

5.6.2. Occupational Health Bureau

The Occupational Health Bureau is responsible for controlling how radioactive substances are handled in the state. The bureau regulates aspects of uranium mining, such as stabilization of mine tailings. In addition, the bureau regulates air and water effluent concentrations of naturally occurring radionuclides and, thus, can regulate effluents from uranium mining activities.

The Occupational Health Bureau also has the authority to regulate handling and storage of uranium ore prior to concentration processes or interstate shipment. None of these uranium-related activities occurs in Montana at present.

5.6.3. Solid Waste Management Bureau

A key provision of the 1977 Solid Waste Management Act is that the state shall promote waste recycling and resource recovery systems for energy production where economically feasible. Using criteria such as proximity to major population centers and availability of energy markets, the Solid Waste Management Bureau identified three areas (Billings, Great Falls, and Missoula) that exhibit the greatest potential for developing recovery facilities. Future

operations in the three areas could process up to 238,000 tons of solid refuse annually. Using the organic portion of this refuse as fuel would be equivalent to 2.4 billion cubic feet of natural gas, 150,000 tons of coal, or 18 million gallons of fuel oil.

In 1981 the bureau funded a planning study for a resource recovery operation in Park County, and subsequently granted the county $200,000 for implementing the state's first resource recovery modular incinerator. This incinerator, with a capacity of 70 tons per day, burns waste from many parts of Park County, including about half of the waste generated in Yellowstone National Park, and produces steam energy for sale to Burlington Northern. The possibility of cogenerating electricity at the Park County plant now is being evaluated.

The bureau recently issued a grant to the City of Missoula and plans to issue a grant to Billings for similar operations.

Energy conservation is also a major focus of the solid waste program. The recovery of materials through recycling can produce substantial energy savings in manufacturing processes. Also, area landfills, an important aspect of local solid waste management plans, result in significant fuel savings through maximum use of equipment in an area.

The bureau administers a $350,000 grant from DNRC's Renewable Resource Development program (see section 4.1.4.10.). Funds are issued to local governments for feasibility analyses, predesign studies, and capital costs of resource recovery and recycling systems.

5.6.4. Water Quality Bureau

Water Pollution Control. The Water Quality Bureau administers the Montana Water Quality Act and the Montana Pollutant Discharge Elimination Permit program. All waterways in the state are classified according to water quality standards adopted in 1973. The permit system applies to point sources of pollution discharging to surface water, which may include coal mines and energy facilities. To obtain a discharge permit, an applicant must have an acceptable waste-water treatment plan that meets the standards for the particular location and waterway affected. The Montana Water Quality Act requires that new sources of pollution not degrade state waters.

In July 1982, the bureau held hearings on proposed new ground water regulations, which could apply to coal development in Montana. These regulations were adopted in September 1982. The regulations will require a permit for any surface activity which may adversely impact ground water quality and is not currently controlled by another regulatory authority. These rules include provisions for the nondegradation of ground water.

Hearings on surface water nondegradation rules that may be pertinent to coal development were held in September 1982. The new regulations took effect in December 1982.

Uranium Mining. The bureau administers state regulations pertaining to solution extraction of uranium. This includes permitting authority over operations proposing to discharge chemicals to ground water for *in situ* uranium mining. The rules require filing a permit application no less than 180 days prior to commencement of any proposed uranium solution extraction mining operation. Information on the site and environment, and proposed mining, monitoring, and restoration plans must be submitted as part of the application. Conditions of permits include, but are not limited to, certain standards for well construction, monitoring, reporting, control procedures, and aquifer restoration. To date, the bureau has not received an application for this type of mining.

Monitoring and Review. The bureau conducts ongoing biological and chemical monitoring of streams throughout the state; it has completed a two-year study, funded by the U.S. Bureau of Land Management, of potential coal-development impacts on benthic life—the tiny plants and animals that live on the bottom of streams—in southeastern Montana. The study will be published by the U.S. Geological Survey.

The bureau also must review any project covered under the Major Facility Siting Act (see section 4.1.1.1.) to determine whether the facility will conform to state water quality standards.

The bureau will be reviewing proposed microhydropower projects to determine impacts on water quality and the possible need for a short-term exemption from surface water quality standards for instream construction activities.

5.7. DEPARTMENT OF HIGHWAYS

The Department of Highways (DOH) has instituted many energy conservation programs and measures designed to reduce operating costs and increase the energy efficiency of several operations within the department.

Vanpooling Program. The Safety and Training Bureau coordinates the department's vanpooling program, which has been in operation since 1979. The vanpool program now averages 33 passengers a day and operates three routes for employees living in the Helena Valley, East Helena, and the far west side of Helena. Three in-town routes were eliminated last year to comply with the 1981 Legislature's directive that the program pay for itself. Until 1981, the

department had subsidized the vanpool program. Participating employees now pay a monthly fee to defray the operating and maintenance costs of the vans.

Maintenance Management System. In the fall of 1982, DOH initiated a new program that uses computerized record-keeping procedures to track the fuel consumption and performance of all vehicles operated by the department. Comparisons will be made between diesel and gasoline engines for maintenance costs, reliability, and depreciation. This program also will provide more flexibility in the scheduling of fuel-efficient equipment.

Summer Work Schedule. DOH maintenance personnel statewide started a 10-hour, four-day work week in 1982. A primary benefit of this program will be a reduction of travel to distant work sites. The department estimates that the program may reduce fuel costs by as much as 20 percent.

Fuel Efficiency Education Program. The department continues to conduct fuel efficiency training programs for maintenance personnel across the state. The main emphasis of the program is on driving techniques, preventative maintenance, and major fuel consumption components. Participants receive intensive behind-the-wheel instruction in an instrumented vehicle, which gives them the opportunity to practice fuel-efficient driving techniques. In the training sessions, employees drive through a planned route with both highway and city conditions. Using an electronic fuel consumption meter, each person's mileage is computed. When the session is completed, the drivers travel the route again and, with the fuel consumption meter, determine for themselves the effects of different driving techniques.

This program is also available to interested agencies outside the department.

Motor Pool Fleet Management System. The department's Equipment Bureau has continued its policy of purchasing more fuel-efficient vehicles and equipment. During 1982, the bureau purchased personnel vehicles, with either four-or six-cylinder engines, and 19 fuel-efficient diesel dump trucks. Another 38 diesel units are on order. These vehicles will show a substantial increase in fuel economy over the gasoline vehicles they replace. The bureau also has purchased smaller motor patrols and loaders that will be more fuel efficient and still perform the duties required.

The Motor Pool Unit has made additional purchases of compact vehicles with more fuel efficient six-cylinder engines. Purchases include 10 subcompacts with four-cylinder engines, four-speed transmissions, and no air conditioning, and four compact pickup trucks with four-cylinder engines. The department's eight passenger vans have been well received and are being used to transport groups of employees to a common destination.

5.8. DEPARTMENT OF STATE LANDS

The Department of State Lands (DSL) performs its duties under the direction of the Board of Land Commissioners, which is composed of the governor, the superintendent of public instruction, the state auditor, the secretary of state, and the attorney general. The board exercises general authority over the administration of laws relating to state lands and forests, including the management and disposition of the lands and the administration of funds arising from the use and leasing of those lands.

Under the board's direction, DSL's primary duties are day-to-day management of state lands and forests, and administration of Montana's mining statutes. In administering Montana's mining statutes, the Reclamation Division processes permit applications for new mines. When it receives a complete application, the division conducts a thorough study of the applicant's mining and reclamation plan before recommending approval or denial of a permit. Since passage of the Montana Strip and Underground Mine Reclamation Act in 1973, the 12 coal companies listed in table II-2 in chapter 2 have received permits. In 1982, a total of 27,838,301 tons of coal were mined in Montana.

Currently DSL is evaluating a permit application by the Western Energy Company for the extension of an existing mine. In addition, several other companies have submitted permit applications that are now being processed—one for Consolidation Coal, one for Kiewit Mining and Engineering, and one for Montco. Potential new coal mines are listed in table III-1 in chapter 3.

5.8.1. State Compliance with Federal Surface Mining Regulations

Montana's proposed coal mining regulatory program was submitted by DSL to the federal Office of Surface Mining (see section 7.5.7.) in August 1979, and was approved by the Secretary of the Interior in April 1980. This program explains how DSL will meet the state program requirements of the 1977 federal Surface Mining Control and Reclamation Act, which is summarized in section 7.5.7.1.

The state's strip mine reclamation law and accompanying regulatory program contain most of the essential features required by the federal legislation. These are: 1) a law that regulates coal mining in accordance with the federal act, including civil and criminal sanctions for violations and an effective permit system; 2) a regulatory au-

thority to regulate coal mining; 3) a process for designating areas unsuitable for mining; 4) a process for avoiding duplication in review and issuance of permits; and 5) regulations consistent with the federal regulations.

Montana's Strip and Underground Mine Reclamation Act (see section 4.1.1.5.) has been revised so that DSL can administer the federal act. In addition, DSL has amended its coal mining rules to make them consistent with those adopted by the federal Office of Surface Mining (OSM).

Although Montana has been responsible for surface mining regulation in the state since 1967, its authority over mining activities on federal land is pursuant to a special cooperative agreement with the Department of the Interior. A cooperative agreement, which was negotiated with OSM in May 1981, completed final implementation of Montana's program. Under this agreement, the federal agencies retain certain areas of authority mandated in federal laws and approve mining plans in specified areas of concern, while the state functions as the primary governmental contact with mining operators.

The federal Surface Mining Act provides grants to help states administer and enforce the federal act and to develop state programs. DSL has prepared a State Abandoned Mine Land Reclamation Program and has received grants to conduct abandoned mine reclamation work in five areas of the state. This program includes a survey of all abandoned mine areas in the state.

DSL has established a Small Operator's Assistance Program under a grant from OSM. Through this program, qualified mine operators can get financial assistance to aid in the collection of baseline hydrologic data.

5.8.2. Environmental Impact Statement Team

The Department of State Lands' Environmental Impact Statement Team evolved from state participation in the Northern Powder River Basin regional and site-specific environmental impact statements on coal development.

Coal mining in Montana has been concentrated primarily in a 7,500-square-mile area in the Tongue and Powder river basins. The future of coal mining and related industrial activity in the region has been the subject of several environmental impact statements (EISs) prepared by the team. The regional EIS, which covered the cumulative impacts of two proposed new mines, one mine expansion, and two new power generating units at Colstrip, was prepared in cooperation with the Department of the Interior and was one of 10 regional coal studies. The final Northern Powder River Basin EIS was published in January 1980.

The team's current function is to write a variety of multidisciplinary EISs for developments ranging from coal mining to shopping centers. Funding comes from Montana Environmental Policy Act fees.

The team recently completed impact statements on the Anaconda Company's South Dump in Butte and its proposed hard rock mine in the Stillwater area, and on Montco's proposed coal mine on the Tongue River in southeastern Montana. In addition, the team and DSL's Coal Bureau have just completed, in an oversight capacity, the third-party impact analysis of Western Energy Company's Area C Block 1 proposed mine plan.

The team is now working on EISs for four mine permit applications: Kiewit Mining and Engineering's Wolf Mountain Mine; Consolidation Coal's CX Ranch; Montco's Nance Mine; and Western Energy's Area B expansion.

5.8.3. Coal Leasing

Montana is continuing to cooperate with the U.S. Bureau of Land Management (BLM) on coal lease tract delineation. Approximately 200 potential state lease tracts were identified through surface evaluations in 1975-76. The Montana State Geologist's Office is conducting drilling and mineral evaluations of state tracts to estimate coal reserves and delineate potential state lease tracts. The state has issued 95 coal leases covering 50,838 acres; at present, only three of these leases are producing.

The State of Montana is represented on the Fort Union and Powder River regional coal teams (see section 11.4.). In addition to identifying coal tracts that might be suitable for leasing, DSL also is assisting BLM in developing recommendations on the quantity of coal to be leased.

5.8.4. Oil and Gas Leasing

Lease sales are held quarterly by the Board of Land Commissioners and are based on competitive oral bids. Preliminary environmental reviews are prepared for all lease tracts offered to identify adverse impacts that may occur and to determine stipulations that must accompany the leases. As of October 1982, there were 11,365 state oil and gas leases, covering 5,049,809 acres; 363 of these leases were producing as of June 1982.

5.8.5. Geothermal Leasing

The Board of Land Commissioners has authority to lease state lands with geothermal resources. The state held its first geothermal lease sale in December 1982. Of the 43 applications for geothermal leases received, only two leases were sold. The next sale will take place when a sufficient number of applications has been received. The state's efforts to encourage geothermal development are discussed in section 5.10.2.1.4.

5.8.6. Uranium Prospecting Permits

To prospect for uranium in Montana, a company must hold a valid prospecting permit as required under the Strip and Underground Mine Reclamation Act (see section 4.1.1.5.). Companies also must have an adequate bond to

cover all disturbances caused by these exploration activities.

Currently, five companies are permitted to conduct uranium prospecting in Montana at sites in Broadwater, Lewis and Clark, Jefferson, and Carter counties. These activities involve a total of 332.3 acres.

Since June 1977, 59 uranium prospecting permits have been issued, although only seven of these permits are active at present. Permits are issued to each company for each county in which prospecting activity takes place.

The most extensive exploration is taking place in Carter County, where two companies are conducting uranium operations covering 265 acres. Kerr-McGee Corporation, with prospecting permits involving 192.2 acres in Carter County, has the largest uranium exploration operation in Montana.

5.9. LEGISLATIVE BRANCH

The Montana Legislature is composed of a 50-member Senate and a 100-member House of Representatives. It meets every odd-numbered year for 90 days. Legislative offices that conduct energy-related activities or programs are described in the following subsections, along with two legislative committees that also deal with energy-related issues.

5.9.1. Coal Tax Oversight Subcommittee

The Coal Tax Oversight Subcommittee was established by SB 347 in 1979. It replaced the original Coal Tax Oversight Committee created by the 1975 Legislature and currently functions as a subcommittee of the Revenue Oversight Committee. The Subcommittee consists of four legislators—two House members and two Senate members—who are not Revenue Oversight Committee members. It is authorized to review programs financed by coal severance tax funds (see section 4.1.5.1.); DNRC and the Montana Coal Board are among the agencies that administer coal tax-funded programs. The Coal Tax Oversight Subcommittee has also monitored the court and congressional challenges to Montana's coal severance tax (see section 11.1.). The subcommittee concentrated on reviewing legislative changes to coal tax legislation and monitoring coal tax-funded programs during the 1981-82 period.

5.9.2. Energy Policy Committee

The 1977 Montana Legislature passed the Energy Supply Emergency Powers Act, which assigns to the governor emergency powers in case of an energy alert or emergency. The 1979 Legislature extended the statute until July 1, 1985. For a full description of the act, see section 4.1.3.

A legislative Energy Policy Committee, consisting of the leadership of both houses, advises and consults with the governor on all actions taken under this law. The committee met in 1977 to advise the governor of possible curtailment measures to be taken during the drought, and again in 1979 to advise on the summer diesel fuel shortage in Montana. The committee did not meet in 1981 or 1982.

5.9.3. Environmental Quality Council

The Environmental Quality Council (EQC) is an agency within the legislative branch of Montana's state government. Created by the 1971 Montana Environmental Policy Act (MEPA), EQC is the single office responsible for reviewing all the environment-related programs of state agencies, with the goal of promoting a unified effort toward enhancing the state's natural, economic, and social environment. EQC has no regulatory powers; it serves strictly in an advisory capacity, making recommendations to the executive branch and the Legislature to carry out MEPA's broad environmental policies.

Thirteen members comprise the nonpartisan EQC: four from each legislative house, four from the public at large, and a nonvoting representative from the Governor's Office. A full-time staff assists council members by preparing research reports, organizing and attending public meetings and hearings, drafting legislation, and completing studies ordered by the Legislature.

The EQC's principal duties, as outlined in MEPA, are to:

— research and analyze environmental trends in Montana;

— monitor environmental actions and policies of state agencies;

— recommend ways to improve the state's natural, social, and economic environment;

— assist the Legislature in preparing environmental legislation;

— prepare an annual report on the state's environment.

The EQC was requested by the 1981 Montana Legislature to conduct an evaluation of DNRC's renewable energy grants and loans program (see section 5.10.2.1.9.). In other energy-related projects, the EQC:

— held an April 1982 conference on ground water strategy, including impacts of energy development on ground water;

— monitors oil and gas exploration and drilling and oversees the environmental problems associated with increased oil and gas activity;

— monitors the development of small-scale hydroelectric facilities in the state, following a study conducted by

EQC and the National Conference of State Legislatures;

— prepared its biennial detailed summary of natural resource-related legislative matters *(Natural Resource Issues in the 47th Legislature);*

— revised in 1982 the *Montana Index of Environmental Permits,* a publication describing permit requirements, fees, time frames, etc., for over 100 permits required for projects that might affect Montana's environment;

— reports on current energy-related issues in its monthly newsletter.

5.9.4. Montana Consumer Counsel

The Montana Consumer Counsel exists pursuant to Article XIII, Section 2 of the Montana Constitution, which provides for an office of Consumer Counsel to represent consumer interests in hearings before the Public Service Commission. The Consumer Counsel's office analyzes rate increase requests from utilities to determine whether the increase is justified. If it believes that the increase is not justified, it intervenes in the case and, if necessary, hires consultants to make recommendations in the form of prepared testimony before the Public Service Commission. This process has resulted in various innovations used by the commission in establishing rates throughout the state.

For example, the Consumer Counsel sponsored the witness who initially recommended that the declining block rate structure, where the price is discounted for large volume consumers, be eliminated and replaced by a volumetric structure, which charges the same for each unit of energy consumed, regardless of the customer's total energy use. This innovation takes into account the scarcity of conventional sources of energy and encourages conservation of those resources. Volumetric rate structures now appear to be favored by the Public Service Commission.

Another example has to do with the increased demand for coal by utilities building coal-fired generating facilities. Many of these utilities have formed subsidiary companies to acquire and mine coal and sell it to the parent company. If the subsidiary overcharges the parent utility for the coal, and the parent utility passes the expense along to the consumer as a cost of doing business, the utility may reap a large profit from its investment in its subsidiary. The Consumer Counsel persuaded the Public Service Commission that an adjustment was necessary to compensate for such overcharging on the part of one utility.

5.10. DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

The Department of Natural Resources and Conservation (DNRC) plays an important role in protecting Montana's quality of life by executing its statutory responsibilities concerning the state's land, water, and energy resources. Three divisions within DNRC have major involvement in energy programs. The Energy Division administers a wide range of state and federal programs dealing with renewable energy and energy conservation. It also is responsible for preparing environmental impact statements for projects that fall under Montana's Major Facility Siting Act and projects for which DNRC is designated the lead agency under the Montana Environmental Policy Act. The Oil and Gas Conservation Division administers laws regulating drilling and recovery of Montana's oil and gas resources. The Water Resources Division has a broad array of energy-related responsibilities associated with the uses, development, and protection of Montana's water. In addition, the Board of Natural Resources and Conservation has authority to approve reservations of water under the Montana Water Use Act and to approve the siting of energy facilities under the Major Facility Siting Act.

The following sections describe the principal energy-related programs and projects of these three divisions, as well as the most recent energy-related actions of the Board of Natural Resources and Conservation.

5.10.1. Board of Natural Resources and Conservation

The Board of Natural Resources and Conservation has authority to approve, modify, or deny applications for the certificate of environmental compatibility and public need for all energy facilities covered by the Major Facility Siting Act (MFSA). The act is described in section 4.1.1.1.

In 1982 a significant portion of the board's attention was devoted to issues surrounding the Townsend to Garrison portion of the Colstrip 500-kilovolt transmission lines. The Bonneville Power Administration (BPA), the federal agency constructing the lines, has stated that, as a federal agency, it is not subject to state jurisdiction. In March 1982, U.S. District Judge James Battin ruled that "BPA must comply with the substantive requirements of the MFSA" and ordered BPA to submit information to the state to enable the state to determine compliance with the substantive standards of the act. DNRC reviewed the federal environmental impact statements and other information and in June, the board determined that BPA would be in compliance if certain construction standards were met. However, in August 1982, Judge Battin issued another order which stated that the MFSA lacks "pre-existing, tangible, objective criteria" which project ap-

plicants can follow to meet the requirements of the law. The state is currently seeking further judicial review on this issue. For more background on the Colstrip transmission line project, see section 3.3.1.3.

Other board actions in 1981-82 related to Colstrip Units 3 and 4 included hearing testimony and making determinations on several conditions placed on the Colstrip consortium's certificate for constructing the power plants. The board reviewed the consortium's compliance with Condition 12(d), which required the utility to completely seal the sludge pond(s) associated with the units. The consortium has not yet built the sludge pond and has reported to the board that completely sealing the pond to achieve zero seepage may not be technically possible.

Condition 12(k), which also was placed on the Colstrip certificate, required that the project applicants offer part ownership in Colstrip 3 and 4 to Montana rural electric cooperatives. Consortium officials told the board that such offers had been made, but that they had been unable to reach any agreements with the coops; the board ruled that Condition 12(k) had been met.

The board also acted on the problem of bird losses caused by wire strikes on the Colstrip transmission lines at Lake Broadview. The board required the Colstrip consortium to pay two sums of money for waterfowl habitat acquisition and habitat management for production. The first payment is for bird losses from 1978-81, the second for losses from 1982 on.

Additional energy-related actions or matters considered by the board in 1981-82 include:

— approval of a request for a waiver from the alternative siting requirement of the MFSA for MPC's proposed 350-megawatt Salem coal-fired power plant. This request was based on a new provision in the MFSA, passed by the 1981 Legislature, which states that when a facility is proposed to be constructed in a county that has recently experienced severe unemployment problems because of a plant closure, the alternative site study requirement can be waived.

— approval of acquisition of water rights for Broadwater, Painted Rocks, and Deadman's Basin hydroelectric projects (see section 5.10.4.1.). DNRC was mandated by the 1981 Legislature to study the feasibility of developing hydroelectric generation at appropriate DNRC water projects.

— approval of a proposed right-of-way lease to the Northern Border Pipeline Company to cross state lands. This natural gas pipeline crosses eastern Montana through Phillips, Valley, and Roosevelt counties.

— updates on Northern Lights Inc.'s proposed 144-megawatt hydroelectric facility at Kootenai Falls. DNRC prepared a draft EIS under the MFSA for this project. This report was released in July 1982. The board also heard status reports on the state's intervention in the Federal Energy Regulatory Commission's hearings on the project (see section 3.2.2.2.).

— considered and approved several centerlines and construction guidelines for transmission lines in various parts of the state, including portions of the Colstrip line from Colstrip to Townsend and a segment of the Dillon-Clyde Park line between Dillon and Sheridan.

5.10.2. Energy Division

DNRC's Energy Division and Facility Siting Division were combined in December 1981 to form a single Energy Division. The reorganized Energy Division has a broad range of responsibilities carried out by three bureaus: the Conservation and Renewable Energy Bureau; the Facility Siting Bureau; and the Planning and Analysis Bureau (see figure V-A). Each bureau's programs are discussed below.

5.10.2.1. Conservation and Renewable Energy Bureau

The Conservation and Renewable Energy Bureau administers several programs within the Energy Division that are funded by the U.S. Department of Energy (DOE): the State Energy Conservation Program; the Energy Extension Service Program; the Institutional Buildings Grants Program; and the Montana Geothermal Program. Four new programs funded by the Bonneville Power Administration, an agency within DOE, are administered by the bureau. They are the Biomass Utilization and Cogeneration Program, the Technical Assistance to Small Consumers and Local Governments Program, the Energy Efficient Rating Program, and the Building Code Enforcement Training Program. Another DOE-funded program, which the bureau is expected to implement in early 1983, is the Residential Conservation Service. In addition, the bureau manages the state's Renewable Energy Grants and Loans Program, funded through a portion of Montana's coal severance tax. These programs are described in the following sections.

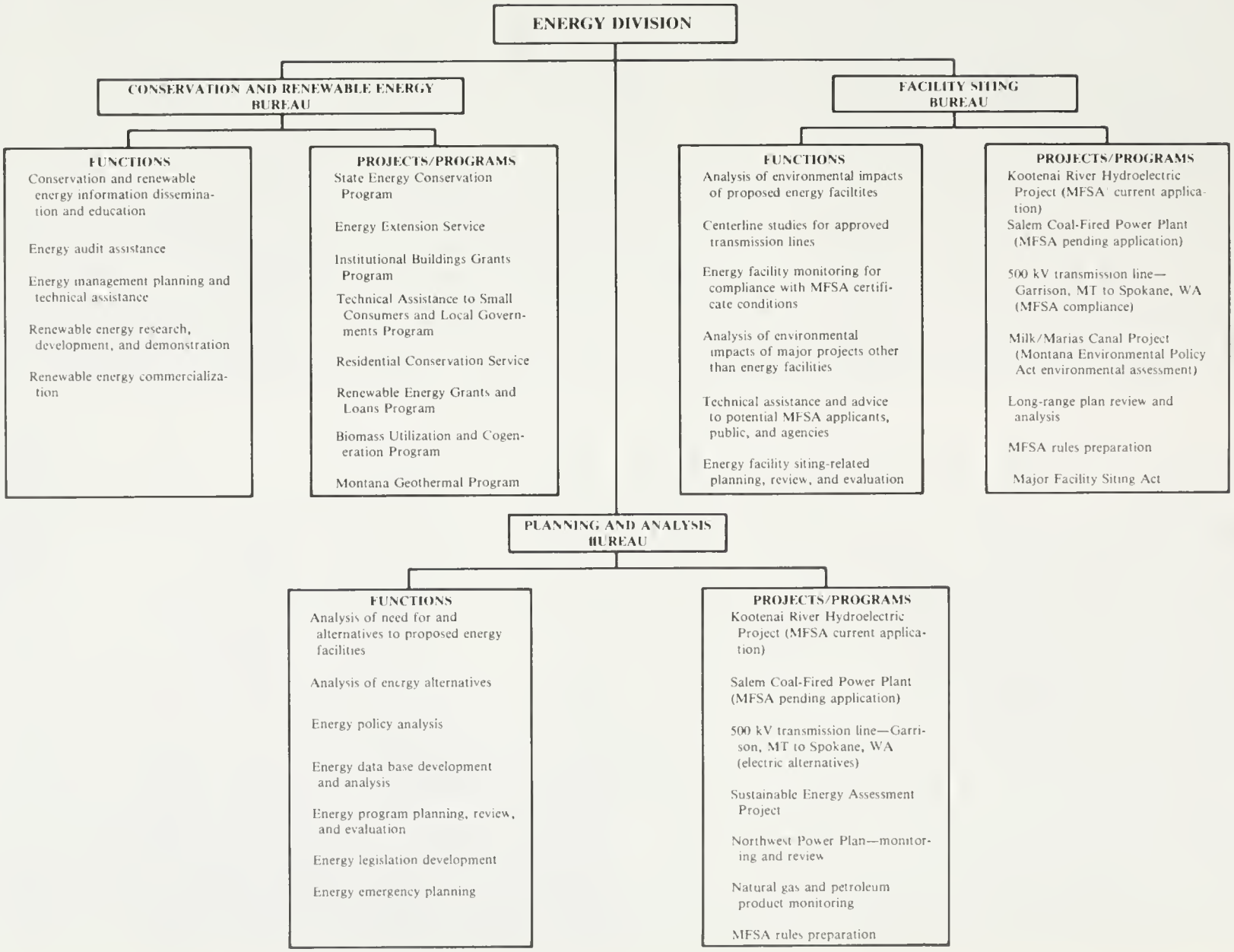
5.10.2.1.1. State Energy Conservation Program.

The State Energy Conservation Program was created pursuant to the federal Energy Policy and Conservation Act of 1975 (P.L.94-163). In accordance with the act, the State of Montana developed a plan to reduce energy consumption in Montana. The State Energy Conservation Program consists of the following activities:

Procurement: Life Cycle Cost Analysis. This program is designed to provide state and local governments with a means to evaluate products for their energy efficiency and determine the effects energy costs have on the lifetime operating costs of products. Lighting efficiency workshops, with an emphasis on life cycle cost techniques, are conducted during the year for building operators, purchasing agents, and administrators.

Energy Managing, Auditing, and Retrofitting State Buildings. The bureau has developed a computerized Energy Consumption Monitoring and Reporting System to track and analyze energy consumption in state-owned and state-leased buildings on a monthly basis. The information generated is helpful in determining how effective energy conservation measures and retrofits are in increasing the efficiency of energy use in state buildings. Data from this

FIGURE V-A
ENERGY DIVISION ORGANIZATIONAL CHART


ENERGY DIVISION
CONSERVATION AND RENEWABLE ENERGY BUREAU
FUNCTIONS
Conservation and renewable energy information dissemination and education
Energy audit assistance
Energy management planning and technical assistance
Renewable energy research, development, and demonstration
Renewable energy commercialization
PROJECTS/PROGRAMS
State Energy Conservation Program
Energy Extension Service
Institutional Buildings Grants Program
Technical Assistance to Small Consumers and Local Governments Program
Residential Conservation Service
Renewable Energy Grants and Loans Program
Biomass Utilization and Cogeneration Program
Montana Geothermal Program
FACILITY SITING BUREAU
FUNCTIONS
Analysis of environmental impacts of proposed energy faciltites
Centerline studies for approved transmission lines
Energy facility monitoring for compliance with MFSA certificate conditions
Analysis of environmental impacts of major projects other than energy facilities
Technical assistance and advice to potential MFSA applicants, public, and agencies
Energy facility siting-related planning, review, and evaluation
PROJECTS/PROGRAMS
Kootenai River Hydroelectric Project (MFSA current application)
Salem Coal-Fired Power Plant (MFSA pending application)
500 kV transmission line—Garrison, MT to Spokane, WA (MFSA compliance)
Milk/Marias Canal Project (Montana Environmental Policy Act environmental assessment)
Long-range plan review and analysis
MFSA rules preparation
Major Facility Siting Act
PLANNING AND ANALYSIS BUREAU
FUNCTIONS
Analysis of need for and alternatives to proposed energy facilities
Analysis of energy alternatives
Energy policy analysis
Energy data base development and analysis
Energy program planning, review, and evaluation
Energy legislation development
Energy emergency planning
PROJECTS/PROGRAMS
Kootenai River Hydroelectric Project (MFSA current application)
Salem Coal-Fired Power Plant (MFSA pending application)
500 kV transmission line—Garrison, MT to Spokane, WA (electric alternatives)
Sustainable Energy Assessment Project
Northwest Power Plan—monitoring and review
Natural gas and petroleum product monitoring
MFSA rules preparation

system have been used by the Department of Administration's Architectural and Engineering Division in estimating the life cycle costs of retrofit options for state buildings.

Ridesharing/Mass Transit. The bureau is involved in promoting ridesharing and mass transit as alternative forms of transportation. Work in this area is coordinated through the Department of Commerce, Transportation Bureau.

Promotion of the 55 mph Speed Limit. The bureau has cooperated with other state agencies to create a public awareness campaign concerning the benefits of the 55 mph speed limit for energy conservation and highway safety. Newsprint advertising and distribution of pamphlets are used to convey this message to Montana motorists.

Energy Conservation Education. The bureau maintains an inventory of pamphlets and publications on conservation and renewable energy. Materials are distributed upon request and at conventions, fairs, and workshops throughout the state.

An annual summer camp is sponsored by the bureau and the Montana Cooperative Extension Service for junior high school students. Students who attend the camp are given hands-on training in many energy conservation techniques and renewable energy technologies.

Specific audiences are also targeted each year to receive programs. In 1983 school teachers will be able to attend workshops on energy education curriculum ideas. The residential sector will be the target of a major media campaign to encourage them to save energy and money in the home by taking a number of weatherization steps, such as caulking and weatherstripping, to increase home energy efficiency. Workshops on boiler efficiency, building codes, window treatments, and insulation are conducted throughout the state.

5.10.2.1.2. Energy Extension Service

The Energy Extension Service (EES) is a DOE-funded information and outreach program designed to encourage energy conservation and the use of renewable energy by consumers. The Montana EES program began in June 1980 and is administered by the Conservation and Renewable Energy Bureau.

The Energy Extension Service works primarily with groups that influence the consumption patterns of small-scale energy consumers. The major audiences in this area are the local governments in Montana. EES also encourages the development of local energy information centers throughout the state. A Technical Reference Center (see section 8.7.) has been established through EES at the Lewis and Clark Library in Helena to promote this development.

Local government program efforts by EES have concentrated on improving the energy efficiency of local government operations and encouraging and assisting local planners to emphasize energy efficiency in community planning. Local governments themselves are often major consumers of energy; more importantly, though, local governments have a significant influence on the energy consumption of people living within their jurisdictions. For example, local governments are responsible for ordinances and permitting processes that control and manage development, which in turn has an effect on energy use because it determines where people live and how far they must drive (or otherwise transport themselves) to work and shop. Local governments also enforce building codes and conduct subdivision reviews. Such activities can impact the energy efficiency of individual homes as well as entire neighborhoods.

EES helps in developing local government energy management plans through direct grants and technical assistance. As of the end of 1982, 12 Montana communities had received grants through the EES program: five for conservation retrofits on municipal facilities, and seven for the development of municipal or community energy management programs. In addition, EES prepared profiles of municipal energy consumption for 16 mid-sized Montana cities. These profiles include estimates of future energy use and costs. Chapter 8 summarizes the energy planning efforts of a number of local governments in Montana.

EES organized an energy management workshop for local government officials in conjunction with the Montana League of Cities and Towns' 1982 annual convention (see section 8.12.).

5.10.2.1.3. Institutional Buildings Grants Program

The Montana Institutional Buildings Grants Program (IBGP) began in April 1979. The IBGP, authorized by the National Energy Conservation Policy Act of 1978, provides funding to public and private nonprofit schools, hospitals, public-care facilities, and local governments for energy conservation.

There are four steps in securing funding from the IBGP. Each step must be completed before an institution progresses to the next step.

Step One is an energy audit application. The energy audit application provides the information needed to determine applicant eligibility and to set the funding level for the energy audit.

Step Two entails an energy audit. An energy audit can be completed by a registered engineer or architect or anyone who has attended an energy audit workshop conducted by DNRC. The energy auditor looks at all the energy-using systems in a building to highlight low-cost and no-cost operational and maintenance changes that can be implemented. Examples of such changes include resetting thermostats, lowering water heater temperatures, and weatherstripping. Funds are available for energy audits on a 50 percent matching basis between DOE and the participating institution. As of September 1982, over 300 energy audits had been completed through the IBGP program.

Step Three is a technical assistance report. The technical assistance report is a detailed engineering analysis of a building. The report recommends energy conservation measures that can reduce energy consumption. Grants for

preparing technical assistance requests are available on a 50 percent matching basis. Since the program's inception, 59 Montana institutions have been awarded technical assistance grants totaling more than $298,000. Thirteen institutions were awarded technical assistance grants in 1982.

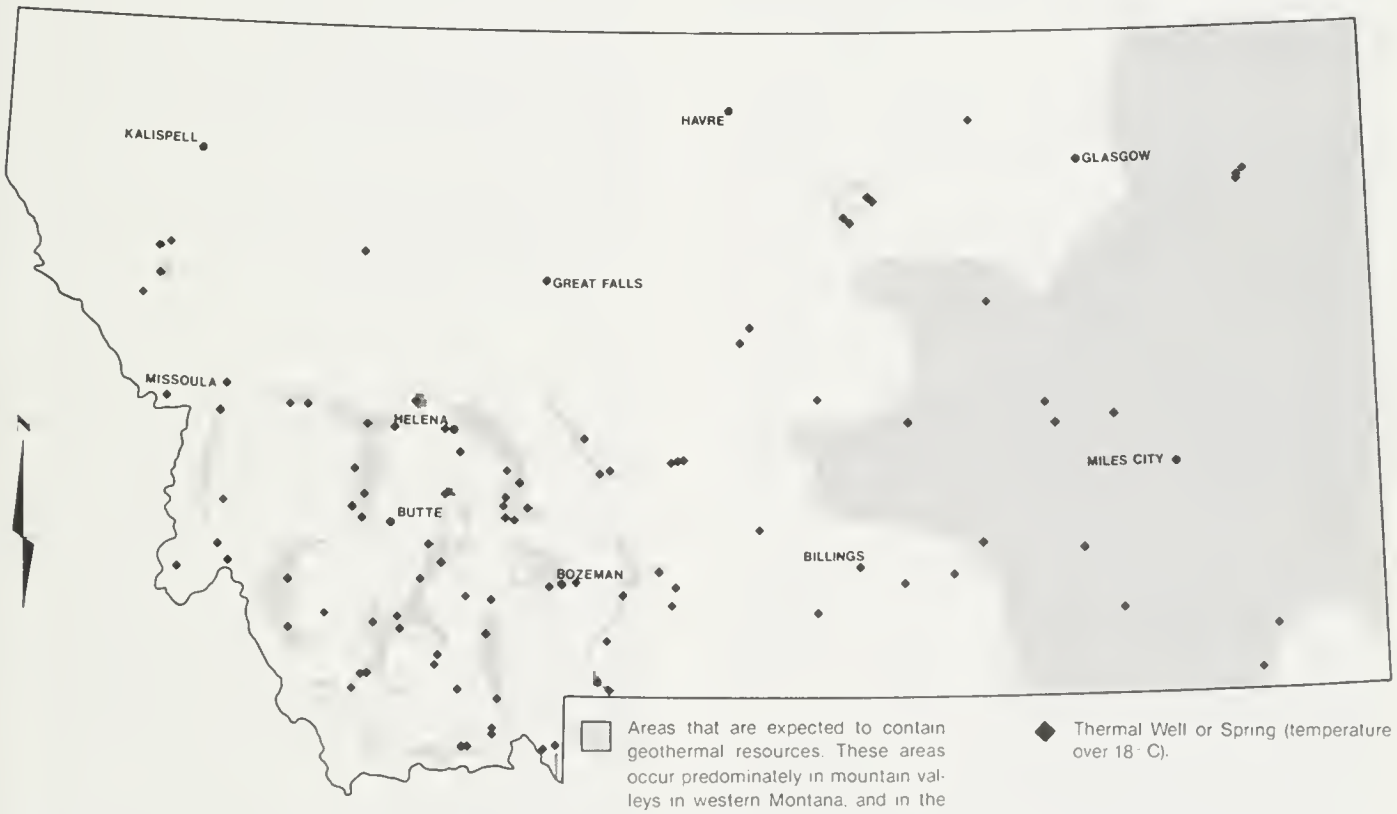
Step Four is the installation of recommended energy conservation measures. These measures have in the past included adding insulation, reducing window areas, and installing new thermostats. Only schools and hospitals are eligible for Step Four funding. Since the program began, over $2 million has been awarded to 38 institutions for energy conservation measures. Thirteen institutions were awarded energy conservation measure grants in 1982. Step Four also is funded on a 50 percent matching basis.

5.10.2.1.4. Montana Geothermal Program

The Montana Geothermal Program is part of a nationwide project sponsored by DOE to promote the use of geothermal heat as a renewable energy source. The program maintains an up-to-date file of current geothermal developments in Montana, geothermal resource owners, and engineering and drilling firms interested in geothermal development in the state. An extensive library covering all aspects of geothermal development technologies, including information on engineering, drilling, and financing geothermal developments, is maintained. A geothermal energy specialist is available for on-site visits with landowners, community planners, and potential geothermal developers to advise them of development and financing alternatives.

Geothermal energy, or "heat from the earth," is abundant in Montana. Approximately 60 hot springs, with temperatures ranging from 50 degrees F to over 180 degrees F, occur in western Montana. Wells near Poplar have produced water temperatures above the boiling point, and artesian wells north of Miles City spew 190-degree F water several feet into the air. Other areas in eastern Montana that show high geothermal development potential include Hardin, Lewistown, and Baker. Figure V-B shows those areas of the state that exhibit the greatest geothermal potential, as well as known geothermal springs.

FIGURE V-B
GEOTHERMAL RESOURCES OF MONTANA



Source: Sonderegger and Bergantino, 1981.

Space heating with hot water is becoming the major use of geothermal energy in Montana. Over a dozen private residences and public buildings in the state are entirely heated by geothermal energy. Geothermally-heated subdivisions and municipal district heating systems are being considered in some communities. Electrical generation using hot water in a low-temperature turbine also is possible; a landowner near Ennis expects to have a small generator operating in 1983.

Process heating with geothermal energy is also feasible in Montana. A developer south of Kalispell is planning to use 120-degree F water to preheat barley mash in an ethanol plant, thus saving 25 percent on his fuel bill. Other potential industrial and commercial uses of geothermal energy include catfish farming, commercial greenhouse heating, and soil warming through irrigation.

The *Montana Geothermal Handbook: A Guide to Agencies, Regulations, Permits and Financial Aids for Geothermal Development* was prepared by the program staff for potential geothermal developers as a guide for working with appropriate federal, state, and local agencies. A forthcoming publication will give an overview of geothermal energy in Montana.

5.10.2.1.5. Biomass Utilization and Cogeneration Program

Energy stored in wood, garbage, straw, agricultural wastes, manure, grain, and plants is considered biomass energy. These biomass sources have all been used in Montana to produce energy in the form of ethanol, methane, or steam.

The Energy Division is participating in a regional 15-month Biomass Utilization and Cogeneration Program funded by the Bonneville Power Administration (BPA). The goal of the program is to bring biomass energy projects closer to implementation in western Montana. The program will accomplish these goals by 1) selecting and funding independent studies for site-specific or area-specific development projects related to cogeneration, direct combustion, or gasification of biomass, and 2) assessing, identifying and evaluating sites possessing high potential for biomass energy conversion. The biomass program will consider projects that would produce energy from forest residues, wood wastes, and municipal solid waste.

Each project funded under the new biomass program will include: an investigation of fuel supply and fuel-handling requirements; conversion options of direct combustion, cogeneration, or gasification; system design and energy analysis; and environmental and economic considerations. Projects will be selected in a process similar to the Renewable Energy Grants and Loans Program (see section 5.10.2.1.9.). Final project selection and approval will be made by the Bonneville Power Administration. The biomass program is coordinating activities with the U.S. Forest Service's statewide wood residue survey and the Montana Department of Health and Environmental Science's solid waste management program.

The Energy Division will present a Biomass Cogeneration Workshop in May 1983 that will focus on the technical, regulatory, and economic issues affecting cogeneration development in Montana.

5.10.2.1.6. Technical Assistance to Small Consumers and Local Governments Program

Under the provisions of the Pacific Northwest Electric Power Planning and Conservation Act, the Bonneville Power Administration (BPA) funded the Energy Division's Technical Assistance to Small Consumers and Local Governments Program in 1982. This program is designed specifically for the BPA customer service area of western Montana. Energy conservation specialists give technical assistance and information to small electrical consumers to enable them to conserve electricity and increase the electrical energy efficiency of space heating, water heating, and lighting.

Small consumers and local governments are served directly through workshops and on-site visits in the areas of home weatherization, energy auditing, and renewable energy use. Information and assistance on obtaining technical and financial assistance through other BPA-sponsored programs also are provided.

5.10.2.1.7. Energy Efficient Rating Program

The Energy Efficient Rating Program also is funded by the Bonneville Power Administration. This new program will provide home buyers with a means to evaluate the energy efficiency of a home before purchase. The energy efficiency rating for a home, which can be compared to the miles-per-gallon figure for an automobile, allows home buyers to evaluate the energy costs of owning different homes.

The program will begin in a pilot phase in early 1983 in a western Montana city. If the program is successful and accepted by the general public, it may be expanded to other communities in Montana.

5.10.2.1.8. Building Code Enforcement Training Program

The Code for Energy Conservation in New Building Construction is part of the minimum/maximum building code that was adopted for Montana. The Building Code Enforcement Training Program will educate local government officials regarding the importance of enforcing the energy code and provide enforcement training for local building code officials.

The building code program will begin in early 1983 and will be closely coordinated with the Montana Department of Administration's Building Codes Division (see section 5.1.). The program is funded by the Bonneville Power Administration.

5.10.2.1.9. Renewable Energy Grants and Loans Program

The Renewable Energy Grants and Loans Program, funded through Montana's coal severance tax, was established to reduce the state's reliance on fossil fuels through increased use of solar, wind, geothermal, small-scale hy-

dro, and biomass energy alternatives. In 1976 DNRC offered its first grants to Montanans for researching, developing, and demonstrating renewable energy alternatives. Through fiscal year 1982, 258 grants totaling $5,407,151 have been awarded through the program.

To encourage the private sector to develop sources of renewable energy, the 1981 Legislature established a subsidized loan program through participating financial institutions. The loan program, developed by DNRC, is designed to encourage commercial ventures and projects with payback or income-generating potential. In fiscal year 1982, eight loans totaling $954,453 were authorized through the program.

Grant and loan applications are submitted and evaluated separately. DNRC staff reviews the grant and loan applications for technical soundness and feasibility. The proposals then are reviewed by the Renewable Energy Advisory Council, a citizens' advisory group. Final authorization rests with DNRC's director, after receiving the recommendations of the staff and council. DNRC may solicit specific proposals to initiate projects that are needed to meet the program's goals and objections.

Any individual or organization is eligible to apply for a grant, as long as the grant project is conducted in Montana and is applicable to Montana's energy needs. Projects may be conducted in the areas of renewable energy research, development, education, public information, and demonstration. Conservation is not considered a renewable energy source; thus, projects dealing exclusively with energy conservation are not eligible for grants.

Any new or expanding business incorporated or authorized to do business in Montana is eligible to apply for a loan. The activities funded must be conducted in Montana and may include development, design, building, manufacturing, marketing, distribution, or sale of a renewable energy form, process, system or system component, or of renewable energy information. Renewable energy loans may not be used for refinancing.

Renewable energy loans are administered by private financial institutions in Montana. DNRC authorizes successful applicants to present their proposals to the financial institutions of their choice. The participating institution then treats the application as it would any request for a loan. If the lending institution approves the loan, DNRC would provide up to 90 percent of the loan principal at the federal reserve discount rate, within the confines of available funds. The financial institution provides the remaining principal at a rate not exceeding its customary interest rate, considering the size of the proposal and the associated risk.

A complete list of renewable energy projects is available from DNRC. Recent grant projects include: innovative solar-heating systems for the Missoula Senior Citizens Center, the Park City School, and Medicine Lake High School; the Livingston municipal wind farm—four 25-kilowatt wind machines connected to the Montana Power Company utility grid system (see section 3.4.2.); a two-day workshop for farmers and ranchers interested in producing fuel-quality methane from cattle manure; construction and testing of a passive solar lumber kiln; and a handbook of renewable energy systems that can be incorporated into existing homes. Loan projects include: construction of a fuel alcohol plant; commercial development of a solar domestic water heating system; and commercial hogfuel chip production from forest thinnings.

The Energy Division has published several documents concerning the Renewable Energy Program, including *Guidelines for Preparing Grant and Loan Proposals to the Renewable Energy Program;* the first two volumes of the *Montana Sunpower* series, which contain descriptions of active and passive solar home projects; the *Montana Solar Data Manual;* and several *Project Spotlights,* which are one-page synopses of completed projects. Other recent Energy Division publications on renewable energy and energy conservation include: the *Montana Renewable Energy Handbook; Eleven Energy Saving Laws; Twelve Ways to Turn Down High Energy Bills;* and the *Montana Energy Resource Guide: A Directory of Energy Education Resources.*

5.10.2.1.10. Residential Conservation Service Program

The Residential Conservation Service (RCS) Program was created by the National Energy Conservation Policy Act. DNRC was designated as the lead agency for implementing the program in August 1980, and a state RCS plan was drafted. DOE published its final revisions to the RCS regulations in the Federal Register in June 1982. The Montana plan was then revised and resubmitted; with DOE approval, Montana's RCS Program should be implemented in 1983.

The RCS Program will require covered utilities (Montana Power Company, Montana-Dakota Utilities, Pacific Power and Light, and Great Falls Gas Company) to provide free home energy audits to any customers in their service area who request them. The audit is a comprehensive study of the customer's energy use. During a visit to the home, the auditor makes low-cost or no-cost recommendations that a homeowner can implement for immediate savings. The auditor carefully studies the structure and systems of the home, gathering data to analyze all energy-saving possibilities, including renewable applications. Final audit results recommend changes and improvements that will save a significant amount of energy and will pay for themselves within seven years.

With the audit results, a customer can devise a plan to implement the recommendations within his or her own budget and time frame. For the customer who wishes to begin improving his or her home immediately, the RCS Program requires utilities to furnish lists of contractors, lenders and suppliers, as well as assistance in arranging for service.

Rural electric cooperatives will be encouraged to participate in the RCS Program voluntarily.

Besides the usual administrative and coordination activities, the bureau also will set up a conciliation board to hear and resolve grievances relating to the RCS Program.

In addition, the bureau will develop energy audit training requirements and conduct the initial training of RCS energy audit instructors. Limited funding for implementing and administering Montana's RCS Program through September 1983 has been available through the DOE-funded State Energy Conservation Program.

5.10.2.2. Facility Siting Bureau

The Facility Siting Bureau evaluates specific energy projects that fall under Montana's Major Facility Siting Act (MFSA) and for which DNRC is designated the lead agency under the Montana Environmental Policy Act (MEPA). The bureau also performs centerline studies for transmission facilities, conducts preapplication baseline studies, monitors facilities that are operating or under construction for MFSA certificate compliance, reviews long-range energy development plans, drafts siting rules and regulations, and provides advice and assistance to potential applicants, the public, and other agencies on facility siting related matters.

Recent projects include preparation of a draft environmental impact statement on the proposed hydroelectric facility at Kootenai Falls (see section 3.2.2.2.), and an evaluation of the Bonneville Power Administration's 500-kilovolt powerlines between Garrison, Montana, and the western Montana border (see section 3.3.1.3.). Montana Power Company's proposed coal-fired power plant at Salem (see section 3.1.2.3.) is currently undergoing review. Reviews are scheduled for other transmission facilities proposed by the Bonneville Power Administration (see section 3.3.1.) and the Western Area Power Administration (see section 3.3.4.). The bureau also is currently monitoring the construction of Montana Power Company's 500-kilovolt transmission lines from Colstrip to Townsend, part of the company's Colstrip 3 and 4 project.

Table V-1 lists completed MFSA applications, and table V-2 summarizes the status of applications for projects that are now being processed.

TABLE V-I
COMPLETED MAJOR FACILITY SITING ACT[1] APPLICATIONS

Major Facilities	Applicant(s)	Type	Size (MW/kV)	Approximate Proposed Length (miles)	Date Received	Date Certified	Centerline Approval
Colstrip Units 3 and 4	Montana Power Co., Puget Sound Power and Light, Portland General Electric, Washington Water Power, and Pacific Power and Light	Coal-fired electric generating plant	1,400 MW	NA	6/73	7/76	NA
Transmission Facilities							
Billings-Yellowtail	Pacific Power and Light		161	40	3/73	5/73	—
Laurel-Bridger	Montana Power Co.		100	27	4/73	9/73	—
Laurel-Billings	Montana Power Co.		100	22	5/73	9/73	—
Colstrip-Broadview	Montana Power Co. and Puget Sound Power and Light		230	110	6/73	11/74	6/75 12/75
Colstrip-Broadview	Montana Power Co.[2]		500	113	6/73	7/76	12/77
Broadview-Townsend	Montana Power Co.[2]		500	131	6/73	7/76	9/80
Wilsall-Clyde Park	Montana Power Co.		161	11.4	12/74	6/75	12/75
Broadview-Alkali Creek	Montana Power Co.		230	19	12/74	1/77	4/77
Clyde Park-Dillon	Montana Power Co.		161	193	6/74	10/77	—
Anaconda-Hamilton	Montana Power Co.		161	65	12/74	10/77	8/81
Troy-Mt. Vernon	Northern Lights, Inc.		115	17	12/77	5/79	9/79 6/80
Broadview-Glengarry	Montana Power Co.		100	118	4/76	8/78	9/78[3]

[1] As amended—only those facilities that would currently require certificates under the MFSA are included in this table.
[2] The applicants also include the utility consortium that proposed Colstrip Units 3 and 4.
[3] One segment of the line received approval; the remaining segments were not constructed.

SOURCE: Energy Division, DNRC.

TABLE V-2
MAJOR FACILITY SITING ACT APPLICATIONS IN PROCESS

Facility	Applicant	Size	Approximate Proposed Length (miles)	Status
TRANSMISSION LINES				
Clyde Park-Dillon	Montana Power Co.	161 kV	193	Centerline approval granted from Dillon to Sheridan. Approval not yet granted from Sheridan to Ennis.
HYDROELECTRIC				
Kootenai Falls	Northern Lights Inc.	144 MW	NA	DNRC released a draft EIS on this proposed facility in July 1982. In January 1983, DNRC suspended its evaluation of this project pending an Attorney General's opinion on the applicability of the MFSA.
COAL-FIRED ELECTRIC				
Salem Project	Montana Power Co.	350 MW	NA	DNRC began a review of Montana Power Company's application for a certificate under the MFSA in February 1983. Once the application is accepted as complete, the environmental impact statement process will begin.

SOURCE: Energy Division, DNRC.

5.10.2.2.1. Long-Range Plans

The Major Facility Siting Act requires any person planning to construct a facility (as defined by the act) within the ensuing 10 years to file a long-range plan with DNRC. All proposed facilities must be adequately described in a long-range plan at least two years before DNRC may accept an application. Long-range plans allow the department to be aware of future developments and thereby anticipate problems that can be dealt with prior to an official application. Planned facilities are discussed individually in chapter 3 and listed in table V-3.

The long-range plan must be submitted by April 1 of each year and must contain: 1) information on the size, type, and location of all facilities to be owned and operated by the person, and an estimated construction date; 2) a description of efforts to coordinate the plan with others in order to provide a coordinated regional plan for meeting energy needs (this pertains only to utility facilities); 3) a description of efforts to involve environmental protection and land-use planning agencies in the planning process, as well as other efforts to identify and minimize environmental problems at the earliest possible time; and 4) projections of the demand for the service, as well as an explanation of the basis for those projections and a description of how the proposed facility will meet the identified need.

Once a long-range plan is filed, DNRC reviews it for adequacy and requests additional information if the plan is inadequate.

5.10.2.2.2. Corridor Planning

In August 1980, the U.S. Forest Service (USFS) Region 1, the U.S. Bureau of Land Management (BLM) Montana State Office, and the State of Montana formally agreed to establish an interagency utility-transportation corridor planning effort within Montana. USFS and BLM are particularly concerned that corridor planning should occur in the context of federal land management planning. Neither agency has complete jurisdiction, however, over the siting of major linear facilities. The state is concerned with private and state lands, and is interested in ensuring that all facilities are sited in an acceptable manner. No existing land management planning process deals comprehensively with long corridors spanning several BLM planning units, several national forests, state land, private land, adjoining states, and other federal and state agency-administered lands, nor is there an interagency land management process that considers future corridor needs. The cooperative corridor-planning effort was initiated to address these needs.

For such a process to succeed, it must be consistent with Montana laws and policies. Montana applications under the Major Facility Siting Act trigger a review and approval process for specific linear energy facilities. Other facilities may be reviewed under the Montana Environmental Policy Act. The state is participating in this joint effort as a means of coordinating planning for future linear facility projects.

The corridor-planning effort was originally structured in five general phases as outlined in the *Utility-Transportation Corridor Work Management Plan for Montana* (USDA, USDI, State of Montana 1980). A final report entitled *Utility-Transportation Corridor Study for Montana* was issued in November 1981. This report described existing utility-transportation corridor policies and standards, documented problem areas and needs, and examined

TABLE V-3
PROJECTED MAJOR FACILITIES AND TRANSMISSION LINES[1]
(Indicated in 1983 Long-range Plans)

Potential Applicant	Facility	Location	Type	Size	Projected Construction Period
Montana Power Co.	Kerr Dam	Lake County	Hydroelectric	28 MW[2,3]	92-
Montana Power Co.	Buffalo Rapids	Lake County	Hydroelectric	(undetermined)[4]	(unknown)
Montana Power Co.	Thompson Falls	Sanders County	Hydroelectric	50 MW	90-
Montana Power Co.	Hauser Dam	Lewis and Clark County	Hydroelectric	25 MW[3]	(unknown)
Montana Power Co.	Ryan Dam	Cascade County	Hydroelectric	40 MW[3]	92-
Montana Power Co.	Carter	Chouteau County	Hydroelectric	75-100 MW	(unknown)
Northern Lights, Inc.	Kootenai Falls	Lincoln County	Hydroelectric	144 MW	85-90
Montana Power Co.	Salem	Cascade County	Coal-fired electric	350 MW	92-96
Basin Electric Power Cooperative	Sunrise	McCone County or a Wyoming site	Coal-fired electric	500 MW 500 MW	89-93
Dreyer Bros.	Circle West	McCone County	Ammonia, methanol-methyl-fuel and synthetic diesel fuel	Up to 35,000 T/da lignite[4]	(unknown)
Farmers Potash Co.	(unnamed)	Daniels County	Potash-fertilizer	Up to 3,500 T/da lignite[4]	(unknown)
Mobil Oil Corp.	(unnamed)	Dawson County	Synthetic fuel (gasoline)	40,000 bbls/d gasoline[4]	(unknown)
Tenneco	(unnamed)	Wibaux or Dawson County	Coal gasification	280 MMcF/d[4]	87-92
Washington Energy Co.	Redwater	McCone County	Coal gasification	250 MMcF/d[4]	-88
Utah International	Moorhead	Powder River County	Coal gasification or coal-fired electric	250 MMcF/d[4]	90
Montana Power Co.	Laurel-Bridger "B"	Yellowstone, Carbon counties	Transmission Line	100 kV 33 mi	84-86
Montana Power Co.	Alkali Creek-Laurel	Yellowstone County	Transmission Line	230 kV 21 mi	85-86
Montana Power Co.	Roundup-Ivanhoe-Sumatra	Musselshell, Rosebud counties	Transmission Line	100 kV 35 mi[4]	86-87
Montana Power Co.	Rimrock-Bellrock 8th St. (Billings)	Yellowstone County	Transmission Line	100 kV(upgrade) 12 mi	85-86
Montana Power Co.	Anaconda-Philipsburg	Granite, Deerlodge counties	Transmission Line	100 kV 27 mi[4]	85-86
Montana Power Co.	Garrison-Helena	Powell, Lewis and Clark counties	Transmission Line	230 kV 50 mi[4]	86-87
Montana Power Co.	Helena-Great Falls	Lewis and Clark, Cascade counties	Transmission Line	230 kV 80 mi[4]	89-90
Montana Power Co.	Plains-Superior-St. Regis	Sanders, Mineral counties	Transmission Line	100 kV 25 mi[4]	88-89
Montana Power Co.	Judith Gap-Glengarry	Judith Basin, Fergus counties	Transmission Line	100 kV 31 mi	85-86
Montana Power Co.	Ovando-Missoula	Powell, Missoula counties	Transmission Line	230 kV 60 mi[4]	87-88
Montana Power Co.	Salem	Cascade County	Transmission Line	230 kV 19 mi	88-90
Montana Power Co.	Ulm-Great Falls	Cascade County	Transmission Line	100 kV 15 mi	85-
Basin Electric Power Cooperative[5]	(unknown)	Eastern Montana	Transmission Line	(undetermined)	89-93
Montana-Dakota Utilities Company	Scobey area	Daniels County	Transmission Line	(undetermined)	(unknown)
Washington Water Power Company	Noxon-Pine Creek	Sanders County	Transmission Line	230 kV 13 mi	84-85

The facilities listed in this table were described in 1983 long-range plans (LRP) submitted to DNRC, with the exception of Mobil Oil, Utah International, and Washington Energy. Information on facilities proposed by these companies was drawn from 1982 LRPs. Other proposed energy developments are discussed in chapter 3.

[2] Pending agreement with Confederated Salish and Kootenai Indian tribes.

[3] These are proposed upgrades of existing facilities; with these additions the facilities would produce a total of more than 50 MW of power.

[4] Potential facilities that may be needed but are not definitely planned at present.

[5] This facility will be associated with a proposed new generating unit

SOURCE: Energy Division, DNRC.

existing and proposed facilities in Montana. The study identified, evaluated, and recommended cooperative policies, siting criteria, overall stipulations by right-of-way type, options to apply to corridor siting processes, and recommendations for joint corridor planning in Montana.

In May 1982, the three participating agencies agreed to criteria for jointly identifying and evaluating the potential of areas as future corridors. They recommended a combined exclusion area, avoidance area, and window concept for selecting future utility-transportation corridors in Montana. Exclusion areas are lands determined to be unavailable for corridor allocation or facility siting. Avoidance areas are land areas that pose particular land use or environmental problems which would be difficult or impossible to mitigate. Windows are usually short, narrow passageways through constrained areas that are the most feasible potential locations for linear facilities, considering engineering and environmental factors.

A Corridor Oversight Review Committee was created in 1982 to ensure uniform application of these criteria in the land management planning process. This group also will function as the steering committee for joint review and evaluation of future linear facilities in Montana over which the USFS, BLM, and the state have siting responsibilities. The Corridor Oversight Review Committee receives direction from the Montana Natural Resource Council formed by a joint Memorandum of Understanding dated September 1981 (see section 5.5.1.).

5.10.2.2.3. Magnetohydrodynamics (MHD) Engineering Test Facility (ETF)

The 1979 Legislature appropriated $500,000 to DNRC to encourage the siting of an MHD-ETF in conjunction with the next coal-fired power plant in Montana. The legislation mandated that siting, engineering integration, need, environmental, and socioeconomic studies be conducted in carrying out the assignment. The funds were also to be used to place Montana in a leadership role in meeting its own energy needs, while helping meet national MHD program objectives.

The overall national MHD program has undergone many changes over the past two years, including redefinition of funding priorities to focus primarily on the research and demonstration needed to bring the technology to a point of readiness for commercialization, at which time the private sector could take over. Much debate has occurred over whether the national MHD program should continue to receive funding and, if so, at what level. A specific program change has been to focus on the demonstration of an advanced MHD test system through interconnection with an existing, retrofitted conventional coal-fired power plant rather than a new plant.

In recognition of the changes that have occurred at the national level, DNRC funded a proposal by the Montana Power Company in November 1981 to coordinate and develop a national utility industry definition of the minimum performance requirements MHD should demonstrate to be ready for commercial use. This effort resulted in the involvement of 24 utilities representing a majority of the electric generation capacity in all major geographic regions of the continental United States. A report entitled *MHD Advanced Test System Performance Requirements,* published in August 1982, was subsequently presented to the U.S. Department of Energy and Congress to encourage continued funding of MHD research and demonstration efforts.

In November 1982, DNRC contracted with Mountain States Energy of Butte to perform an engineering assessment of the retrofit potential to an existing utility steam-electric power plant located in the state of Montana for an MHD advanced test system. This project will be completed in June 1983.

5.10.2.3. Planning and Analysis Bureau

The Planning and Analysis Bureau performs studies under the Major Facility Siting Act and the Montana Environmental Policy Act in the areas of energy need analysis and evaluation of alternatives to proposed facilities. In 1981-82, the bureau conducted the electricity load and alternatives analysis of the proposed hydroelectric facility at Kootenai Falls on the Kootenai River near Libby, Montana. A study of Montana Power Company's proposed coal-fired power plant known as the Salem Project began in February 1983.

The bureau also: 1) worked with the Bonneville Power Administration and the Northwest Power Planning Council to plan for implementation of the Northwest Power Act; 2) developed a petroleum monitoring program to track supply, distribution, and consumption of petroleum fuels in the state; 3) began work on the Montana Sustainable Energy Assessment (SEA) project that will develop information to support the near-term implementation of cost-effective sustainable energy measures in Montana; and 4) completed the Montana Energy Emergency Contingency Plan.

The bureau's current programs are described in the following sections.

5.10.2.3.1. Analysis of Needs and Alternatives

The Major Facility Siting Act (MFSA) requires the Board of Natural Resources and Conservation to determine the need for any proposed major utility facility. (The act does not require a determination of need for a nonutility facility.) Once a need for energy is confirmed, the board then must determine whether the proposed facility is the best means for meeting that need. The MFSA directs DNRC to develop the analysis on which the board bases its decision.

The need analysis deals with the projected demand for energy that a proposed facility is to meet. A separate analysis is conducted for each proposed facility. A comprehensive need analysis requires consideration of the end use and the fuels appropriate to the end use. The need analysis also assesses the responsiveness of de-

mand to different economic variables—in particular, the price of the energy to be produced by a proposed facility.

Although the Montana Environmental Policy Act (MEPA) does not require a determination of need for a project, it does require that alternatives, including the "no action/no build" alternative, be investigated. Analysis of these alternatives proceeds in a manner analagous to the analysis of need under the MFSA; it produces a recommendation based on the relative merits of the proposed facility and alternatives. Responsibility for conducting this analysis is assigned to DNRC at the discretion of the governor.

The analysis of alternatives under MFSA and MEPA embraces the entire range of practical means for meeting the energy demand identified in the need analysis. Alternative facility sites, facility sizes, conversion technologies, transmission and distribution systems, and pollution control systems may be examined, as well as conservation. Alternative fuels, including fossil, renewable, and nuclear fuels, also may be studied, though only those alternatives that plausibly might be more attractive economically or have less social and environmental impacts are analyzed.

5.10.2.3.2. Energy Data Collection, Analysis, and Dissemination

The Planning and Analysis Bureau serves as a central repository for all types of energy information by collecting and maintaining data from public utilities and private sources, state and federal agency reports, and energy-related trade publications.

The bureau's data collection objectives are: 1) to make the data more readily available to other agencies, researchers, and the public; 2) to compare data from different sources, noting the discrepancies resulting from the differences in their data collection methods, reporting procedures, terminology, and definitions; 3) to coordinate state and regional energy modeling information; and 4) to maintain a data base for the analyses that are part of the division's activities under the Major Facility Siting Act, the Montana Environmental Policy Act, and other projects.

As part of the bureau's energy emergency planning function (see following section), the bureau is developing a detailed petroleum products data base on refinery production, pipeline shipments, terminal inventories, and fuel sales in Montana. The 1981 Legislature authorized a fuel monitoring program in amendments to the Energy Supply Emergency Powers Act.

Biennially, the bureau produces three general interest reference publications: the *Montana Historical Energy Statistics,* which is a compilation of Montana energy sales, consumption, and production data illustrating trends in energy development and use in Montana, the *Montana Energy Almanac,* which summarizes Montana's energy legislation, policies, and programs, and the *Montana Natural Gas and Petroleum Review,* an analytical report on the state's oil and gas industry.

5.10.2.3.3. Energy Emergency Planning

The Energy Division published the *Montana Energy Emergency Contingency Plan* in 1981, following extensive review and interagency coordination. The contingency plan implements the Energy Supply Emergency Powers Act, passed by the 1977 Legislature, which defined the powers of the governor during an energy shortage. This law is described in section 4.1.3.

The contingency plan establishes criteria for declaring either a supply alert or an energy emergency and specifies the procedures that may be instituted during a supply alert or emergency. Guidelines that the governor will follow in dealing with petroleum fuel and electricity supply shortages are part of the contingency plan.

As part of the contingency plan, the governor assigned responsibility for implementing specific measures to appropriate state agencies. In developing the implementation plan for a specific measure, the state agency consults the other agencies, institutions, and industries that would be affected by such a measure, should the governor invoke it. The severity of the shortages as well as the measures to be implemented will determine the specific administrative response to each shortage.

The contingency plan calls for the governor to request that each county establish a County Energy Emergency Panel. During an energy shortage or emergency, the panels will advise the state on the resources in their counties and the impact of any shortages. The panels will also help the state implement appropriate conservation measures and cooperate with local or private groups formed to provide public assistance during an energy shortage.

5.10.2.3.4. Sustainable Energy Assessment Project

The Energy Division is conducting a series of projects, known collectively as the Sustainable Energy Assessment (SEA) Project, to assess the potential of and develop data on energy conservation and renewable energy in Montana. Conducted by the Planning and Analysis Bureau, SEA is intended to support: 1) the formulation of government policy regarding sustainable energy; and 2) private sector development of sustainable energy resources. The project will concentrate on questions of general technological feasibility and estimates of resource potential that would be useful for planning through the end of the decade. The results of SEA will be integrated into the Renewable Energy Grants and Loans Program, the state Energy Conservation Program, and the needs and alternatives analysis required by the Major Facility Siting Act for proposed energy facilities.

SEA consists of a series of projects in the areas of resource assessment, energy end-use analysis, and technology profiles. The scopes of the projects cover questions

of economic viability, commercial availability, and environmental acceptability of the technologies and processes for gathering and converting sustainable energy resources to useful forms of energy.

Resource assessment projects estimate the amount of renewable resources in specific regions. A Wind Energy Atlas is now being prepared for the entire state. DNRC, in cooperation with the U.S. Geological Survey, is conducting a year-long study of small streams in northwestern Montana to locate potential sites for microhydropower development. The oil seed resource in eastern Montana, a potential source of substitutes or extenders for diesel fuel, is being assessed. Agriculture and food processing waste products around the state are being evaluated as a source of feedstocks for alcohol plants.

End-use analyses describe the current purposes for which energy is used. Analysis of end use will define the need and opportunity for implementing different sustainable energy technologies. SEA will concentrate its studies in the residential and commercial sector. Off-road diesel fuel use also will be studied.

Technology profiles are generic descriptions of different sustainable energy technologies in terms of economics, environmental impacts, institutional barriers, and other social concerns. The results of these studies should be sufficient to base decisions about further investigations of and investments in hardware. Initially, SEA will investigate superinsulation and passive solar design for new housing, retrofitting of existing housing, solar domestic hot water systems, wind turbines, heat pumps, and techniques for improving the efficiency of trucks.

5.10.3. Oil and Gas Conservation Division

In administering Montana's oil and gas statutes, the Oil and Gas Conservation Division is charged with preventing wasteful or harmful practices in resource recovery. The division's responsibilities include classifying and inspecting wells, issuing drilling permits and pooling orders, and establishing well-spacing units and secondary recovery programs. Collecting data on oil and gas production, drilling, and exploration activities is a primary division function. The information is published in the *Annual Review of Oil and Gas*. The division also maintains a drill cuttings depository, and a well data library.

Oil and gas production information is presented in chapter 2.

In 1979 the division was appointed by the Federal Energy Regulatory Commission as the state agency responsible for implementing the Natural Gas Policy Act of 1978 (see section 7.3.1.). The division's responsibility as the jurisdictional agency is to evaluate applications submitted by gas well operators who wish to qualify their wells for the maximum lawful price allowed under the act. In 1981 the division processed 273 applications by gas well operators.

5.10.4. Water Resources Division

The Water Resources Division administers DNRC's water resource programs. Included in its functions are administering the Montana water rights laws, preparing the state water plan, operating, maintaining, and constructing state-owned water resource projects, and administering the weather modification, dam safety, technical assistance, water development and renewable resource development programs.

The division is responsible for a master contract arrangement with the U.S. Bureau of Reclamation, which permits Montana to administer subcontracts with potential industrial water users from Fort Peck Reservoir (see section 7.5.6.). The five-year master contract provides for a subcontracting limitation of 300,000 acre-feet annually. To date, DNRC has not marketed any of the Fort Peck water for industrial use.

The division participates in water- and energy-related studies sponsored by the Missouri River Basin States Association. The division coordinated the state's response to the U.S. Army Corps of Engineers' National Hydroelectric Power Study (see section 7.2.1.).

The division administers two programs funded by the state's coal severance tax that deal to some extent with energy: 1) the Water Development Program, which authorizes grants and loans to local governments, state agencies, and private entities to fund water development projects such as hydropower generation and construction of dams and reservoirs; and 2) the Renewable Resources Development Program, which provides grants and loans for developing and preserving the state's renewable resources.

The division's principal energy-related programs and projects are described below.

5.10.4.1. Hydroelectric Projects

DNRC has proposed to develop hydroelectric facilities at certain state-owned dams and sell the energy generated to utilities through long-term contracts. The revenue derived will then enable the state to repair and maintain existing water projects as well as construct new ones.

The 1981 Legislature endorsed this proposal with the passage of Chapter 503, Laws of 1981 (see section 4.1.4.11.). The law requires the department to study the economic and environmental feasibility of constructing and operating the hydroelectric projects. If, based on these studies, the Board of Natural Resources and Conservation determines that the projects are feasible and in the best interest of the people of Montana, the sites are made available for lease to public utilities, electric cooperatives, and Montana corporations. The board then evaluates the lease proposals received and awards a lease to one of the proposers. If no lease is negotiated, the board may authorize development by the department.

The department has requested authorization from the Federal Energy Regulatory Commission (FERC) to con-

struct a 10-megawatt facility at the Broadwater Power Project at Toston on the Missouri River. Authorization to construct a 5-megawatt facility at the Painted Rocks Hydroelectric Project on the West Fork of the Bitterroot River south of Hamilton has already been granted by FERC. During 1983, DNRC expects to make the Broadwater and Painted Rocks projects available for lease.

The department applied to FERC for preliminary permits to study the proposed addition of hydroelectric generation at six other state-owned dams. FERC issued preliminary permits to DNRC for Nevada Creek Dam, Cooney Dam, and Middle Creek Dam. The permits for the other projects—Ruby Dam, Tongue River Dam, and Deadman's Basin Dam—were issued to competing entities.

Reconnaissance studies conducted by DNRC indicate that the Nevada Creek and Middle Creek sites are not feasible for hydroelectric development and these permits have been surrendered. Cooney Dam was determined to be feasible at the reconnaissance level and a detailed feasibility study is now in progress.

In 1980 the Water Resources Division received a grant from the U.S. Department of Energy to prepare current information on small-scale hydropower development in Montana. Results of this study are presented in a 1982 report entitled *Montana Hydropower: A Manual for Site Developers,* prepared for DNRC by the Montana Water Resources Research Center (see section 5.15.4).

5.10.4.2. Yellowstone Hydropower Study

The 1981 Montana Legislature, in passing HB 861, directed DNRC to investigate the development potential of hydroelectric power in the Yellowstone River Basin. The concept to be evaluated involves the diversion of excess Yellowstone River flows (those flows above the amount needed to meet prior water rights and existing reservations) using gravity conveyance to offstream power generation facilities. Diverted water would eventually be returned to the river, and all facilities would be operated in light of existing water rights and reservations.

The goal of the investigation was to select one or more potential demonstration sites and evaluate the costs and benefits of development. Initially, 30 potential project sites were identified within the Yellowstone River Basin. Reconnaissance level site information and cost estimates were made for each site. A series of screenings reduced the number of potential sites, and more detailed information was developed for each project that remained after each screening. Finally, a site on Lower Deer Creek in Sweetgrass County was determined to be the best site for a detailed investigation. With the selection of the Lower Deer Creek project, site-specific investigations were conducted at the proposed diversion site and canal route, the storage site, and the generation facility. In addition, a secondary investigation was conducted on the Starved-to-Death Creek site in Treasure County.

The department prepared a summary report of investigation findings for the 1983 Legislature. Major areas addressed in the report include a cost-benefit analysis and an assessment of additional environmental, licensing, and financing study needs.

5.10.4.3. Energy-Related Industrial Applications

The Water Resources Division receives applications for water use permits from present as well as potential water users. Among these applications are those for energy-related industrial use. Table V-4 lists all current applications for water use permits from prospective industrial users or brokers of water for industrial use.

5.10.4.4. Water Reservations

Under the 1973 Montana Water Use Act, state and federal agencies, as well as political subdivisions of the state, may apply to the Board of Natural Resources and Conservation to reserve water for existing and future beneficial uses, or to maintain a minimum flow or quality of water.

Between 1974 and 1978, the board devoted considerable attention to allocating water reservations from the Yellowstone River; by 1977 DNRC had received 30 reservation requests for Yellowstone River Basin water. Applicants and objectors—primarily energy industry representatives—participated in hearings after which the board issued its final order in 1978. It granted water use priorities in the following sequence: municipal use, instream use in upper basin, irrigation, instream use in lower basin, and, finally, multipurpose storage, which could include water for large energy developments.

The DNRC Water Resources Division is currently processing, on a case-by-case basis, the incoming applications for reservations of water in the Upper Missouri and Columbia river basins. When applications are correct and complete, they will be reviewed by the board for approval. As required by law, each application must explain in full detail: 1) the purpose of the reservation (municipal, multipurpose storage, instream, or irrigation); 2) the need for the reservation (a clear justification of future water needs expressed in terms of population projections, irrigable acres, extractable energy resources, etc.); 3) an explanation that the reservation is in the public interest; and 4) the amount of water requested.

5.10.4.5. Missouri River Basin Water Use Study

In response to a 1981 legislative directive, the Water Resources Division embarked on a study of ways to protect Montana's water for current and future instate use in light of downstream commitments. The final study report, *A Water Protection Strategy for Montana,* was issued in December 1982. The report contains an evaluation of the potential for conflict on all of the major drainage basins in Montana, but concentrates on the problems of interstate water allocation in the Missouri River Basin.

Recent actions by the upper basin states to develop water guaranteed to them in the 1944 Flood Control Act (and later amendments to the act) have created conflict between the upper and lower basin states. For example, South

TABLE V-4
PENDING ENERGY-RELATED INDUSTRIAL WATER USE PERMIT APPLICATIONS

APPLICANT	SOURCE	COUNTY	AMOUNT[1]	PURPOSE
Dreyer Bros.	Big Dry Arm Fort Peck Reservoir	McCone	32,000 afy	coal conversion to ammonia, methanol-methyl fuel, and synthetic diesel fuel, and plant and mine needs
Utah Intl.	Powder River and Fence Creek (Wy)	Powder River	32,680 afy and storage	coal gasification or coal-fired electrical generation
Farmers Potash	Poplar River or Beaver Creek	Daniels Sheridan	7,000 afy 7,500 afy	potash fertilizer production (coal-burning)
U.S. Bureau of Reclamation	Marias River Tiber Reservoir	Liberty	636,000 afy	hydroelectric power generation
U.S. Bureau of Reclamation	Beaverhead River	Beaverhead	323,400 afy	hydroelectric power generation
Gulf Oil Corp.	Powder River Mizpah Creek Pumpkin Creek Groundwater Yellowstone River Lignite Creek Coal Creek	Powder River Custer Custer Powder River Custer Custer Custer	45,000 afy 27,000 afy 18,000 afy 43,444 afy 45,000 afy 500 afy 300 afy (total not to exceed 90,000 afy)	coal-fired energy-production plants
Northern Lights Inc.	Kootenai River	Lincoln	10,503,863 afy	hydroelectric power generation
Mobil Oil Corp.	Yellowstone River	Richland	35,000 afy	synthetic fuels and by-products
Intake Water Co.	Powder River	Powder River	318,700 afy 245,700 afy inactive storage	sales to industrial users for coal gasification
	Beaver Creek	Wibaux	6,800 afy	
Jan H. Paul	Yellowstone River	Prairie	252,000 afy	sales to industrial users (not specified)

[1] May include amounts for other uses: municipal, irrigation, etc.

SOURCE: Water Resources Division, DNRC.

Dakota has arranged for an annual sale of 50,000 acre-feet of Lake Oahe water to Energy Transportation Systems, Inc., to slurry Wyoming coal to power plants in Arkansas and adjacent states. This action has led to litigation by the lower basin states and congressional moves that could have the effect of curbing future depletions in the upper basin.

High, medium, and low projections of future water consumption and development were made for Montana as well as the rest of the basin. The projections include those for irrigation, energy, municipal, industrial, interbasin diversions, and others. Future conflicts on the mainstem of the Missouri River will principally involve the use of water for maintenance of downstream navigation and hydroelectric generation versus upstream depletions of water for consumptive uses.

The report recommended several components of a strategy for protecting the state's water, including monitoring congressional and downstream state actions that limit Montana's options, encouraging resolution of conflicts through negotiation, preparing for the eventuality of new water allocations among all Missouri River Basin states, and encouraging the wise use and development of water within the state. Specifically, the report included recommendations that the state explore the potential of joint local-state-federal hydropower development on fed-

erally owned facilities (such as Yellowtail Afterbay), as well as hydropower development on existing state-owned projects. The report also recommended that the state consider constructing new water projects, particularly in light of new federal policies that favor states taking the lead in water development.

5.11. OFFICE OF PUBLIC INSTRUCTION

The energy education activities of the Office of Public Instruction (OPI) center on assisting with curriculum development, identifying applicable instructional materials, and identifying people who can provide technical assistance in energy matters to local schools in Montana.

Curriculum assistance generally involves incorporating energy education objectives into existing instructional programs rather than designing new units. The National Science Teachers Association has developed and disseminated interdisciplinary student/teacher energy education materials that OPI has used extensively. OPI conducts many seminars and inservice workshops on energy education for teachers throughout the state.

In addition, OPI has an "Energy/Environment Simulator," which is a portable computer that can simulate resource use, environmental impact, and outcomes of decreasing supplies and increasing energy demands. OPI staff provide the training needed for competent use of the simulator. The simulator is used as a teaching device throughout Montana.

5.12. PUBLIC SERVICE COMMISSION

The Montana Public Service Commission (PSC) regulates public utilities to ensure that consumers receive safe, reliable, and adequate service at the lowest possible cost, while at the same time ensuring that the utilities receive a fair and reasonable return on their investments. Structuring rates can be considered a vital aspect of the planning and reorientation that must occur as conventional sources of energy become scarce and expensive. Rates may be structured to encourage energy conservation and a transition to "non-conventional" or alternative energy forms, and to provide appropriate price signals that reflect the costs of energy production and distribution among all classes of consumers.

5.12.1. Rate Structure

PURPA, the federal Public Utilities Regulatory Policies Act (see section 7.3.1.) of 1978, required state regulatory authorities, such as the Montana Public Service Commission, to consider different utility rate structures that could enhance conservation, efficiency, and equity. Under that order, the PSC has examined the rate structures for all gas and electric utilities in Montana. Through extensive rate case proceedings, the PSC has restructured traditional rates so that they more accurately reflect the post oil embargo trends in energy costs.

Traditionally, energy rates have been structured to reflect the declining costs found in the pre-oil embargo era. Under rate structures such as the declining block rate, consumers paid less money per unit of energy the more energy they consumed.

PSC's restructuring efforts feature flat rates, in which the price per unit of energy consumed remains constant, and inverted rates, in which the price per unit consumed increases incrementally with the amount of energy used. These rates reflect the actual costs associated with incremental energy consumption and financially reward the consumer for conserving energy. Incremental costs are differentiated in these rate structures by time-of-use (daily or seasonal) and serve to provide the customer with a more accurate indicator of current energy costs.

An example of a company that has employed restructured electric rates is the Pacific Power and Light Company (PP&L). The PSC adopted a three-tier inverted rate schedule for the company's residential electricity customers. The third tier applies to consumption of greater than 1,300 kWh in the winter and 600 kWh in the summer, with a 10 percent seasonal differential. The rates generally reflect the long-run incremental costs associated with building baseload plants.

In April 1982, the PSC adopted a new electric rate design for MPC that would raise irrigation rates an average of 55 percent; cut residential rates by an average of 3.5 percent; cut rates for the general service class of customers (schools, government agencies, all businesses except the 11 largest industries in Montana) by an average of 12.8 percent; and increase rates for the state's largest industrial customers by an average of 37.1 percent.

Montana ranchers and farmers, organized as Montana Irrigators Inc., obtained a court order in July 1982 that prevented PSC from implementing this new rate design. In May 1983, a state district court judge reversed PSC's 1982 rate design order, stating that the PSC had not adequately documented the need for the change. PSC has not decided

whether to appeal this ruling to the state Supreme Court or to conduct a new rate design hearing for MPC.

5.12.2. Cogeneration and Small Power Production

PURPA requires utilities to buy electricity from small power producers—including those using wind machines, small dams, and cogenerators to convert waste heat into power—that meet certain conditions. The law was intended to encourage the use of renewable sources of electrical generation.

The law also requires state regulatory bodies, such as the PSC, to set rates at which utilities must buy this power. In March 1982, in one of a series of rule-making and rate case proceedings, the PSC established a procedure whereby the three major electric utilities in Montana—Pacific Power and Light Co., Montana-Dakota Utilities, and the Montana Power Company—must buy available power from cogeneration and small power-producing (CSPP) sources and interconnect those sources with the existing electrical grid.

The rules established by the PSC outline the general obligations of both the utilities and the CSPP sources, including payment options, insurance requirements, and contract terms. Recent utility action challenging PURPA's payment requirements could affect the PSC's new regulations.

5.12.3. Utility Holding Companies

On March 1, 1982, the PSC began an investigation of the Montana Power Company's efforts to reorganize into a holding company. The reorganized company would feature a new holding company—the Montana Energy Company—serving as an "umbrella" to wholly owned subsidiaries—including Western Energy, Altana Exploration, and North American Resources.

The PSC's investigation will examine the implications of the proposed reorganization for ratepayers. Hearings began on November 16, 1982. A decision is expected in the early spring of 1983.

MPC has appealed to the Montana Supreme Court a lower court ruling that forbids it from forming an energy holding company until the PSC has completed its investigation. The state Supreme Court heard the appeal in April 1983 and will rule later in the year.

5.12.4. Natural Gas Supply

The increasing cost of Canadian natural gas to Montana Power Company (MPC) prompted the PSC to review MPC's natural gas sources and acquisition policy late in 1980. PSC investigations in this area are continuing. Some of the areas being considered are: 1) current natural gas reserves and the deliverability that can reasonably be anticipated during the period 1979-1983, for each field in the MPC system; 2) estimated reserves and deliverability of fields not yet in the system but under contract to MPC; 3) current acquisition policy with respect to new gas purchases, price (Canadian, other), gathering, processing, the need for take or pay provisions; 4) a prudent gas supply mix or a range of alternative mixes designed to assure adequate long-term supply at reasonable cost, recognizing market variables; 5) an analysis of the flexibility in the Alberta and Southern contract (one of MPC's major Canadian gas contracts) with respect to minimum takes, makeup provisions and periods, ability to terminate and conditions of termination, possible reduced or renegotiated take provisions, and any adverse results of exercising options; and 6) evaluation of the sales market under conditions of rapidly escalating Canadian and domestic prices, including (a) the probable level of industrial conversion from gas to other fuel sources, and the estimated time frame; (b) the cost-of-service impact of industrial conversion on the remaining customers and customer classes, assuming various percentages of industrial conversion; and (c) the impact of substantial market reductions on exploration and acquisition, take or pay contracts, and wellhead pricing.

5.13. DEPARTMENT OF REVENUE

The Department of Revenue administers most of the state's tax programs. Energy-related taxes include the coal severance tax, coal gross proceeds tax, oil and natural gas severance tax, oil and gas net proceeds tax, resource indemnity trust tax, electrical energy producers license tax, gasoline license tax, and the special fuels tax. Energy-related tax incentives include income tax credit and property tax exemption programs for the installation of a renewable energy system, and an income tax credit or deduction for energy conservation measures. The structure and essential features of each tax or program are summarized in sections 4.1.4.2. and 4.1.5.

In April 1982, the Natural Resource and Corporation Tax Division was created to consolidate the administration of severance taxes and other revenue collected from natural resource development. This change will give the

department a more efficient structure for auditing corporations involved in energy development in Montana. The reorganization also will allow the department to join with the federal government in stepping up efforts to collect taxes on federal oil and gas royalties and leases. Half of the money collected from federal royalties and leases is allocated to the state.

In fiscal year 1982, natural resource taxes yielded $151 million in state revenue and $70 million in local revenue.

Although the Department of Revenue is primarily concerned with tax collection and accounting, the energy conservation and alternative energy incentive programs require regulations to define the types of energy systems, materials, and equipment that qualify for tax deductions or credits. For example, in new construction, a credit or deduction is allowed only for expenses incurred in excess of what is required to meet established building standards. Tax credits are not allowed for investments in production or in rendering a service to customers. These energy-related tax incentives are described in section 4.1.4.2. For the 1981 tax year, 14,034 returns claimed the conservation credit and 1,010 returns claimed the alternative energy system credit.

5.14. DEPARTMENT OF SOCIAL AND REHABILITATION SERVICES

Home weatherization and low-income energy assistance programs were transferred to the Department of Social and Rehabilitation Services (SRS) in 1981. Previously, these programs had been administered by the Department of Community Affairs.

5.14.1. Home Weatherization Program

This program is administered by the Economic Assistance Division and delivered through local contractors for the purpose of increasing the energy efficiency of dwellings occupied by low-income persons. Fuel savings of up to 50 percent of household fuel costs can be realized by improving caulking around windows and doors, installing storm windows and doors, insulating walls and attics, and weatherstripping and repairing broken windows. Since 1975, about 13,500 homes of low-income, handicapped, or elderly persons have been weatherized. The attendant energy savings continue to be realized for as long as the homes exist, and increase in value as energy prices rise over time.

Program eligibility is determined by the income status guidelines of the federal Office of Management and Budget. Owner- and renter-occupied homes are eligible for weatherization assistance through the program.

The federal Department of Energy approved funding for this program at approximately $1.5 million for Montana for fiscal year 1982, with no local or state matching funds required. In many areas, weatherization work is subcontracted to locally based energy businesses as a strategy to accelerate weatherization and stimulate local economic development.

5.14.2. Low Income Energy Assistance Program

SRS's Economic Assistance Division is responsible for administering Montana's Low Income Energy Assistance Program. Under this program, the state receives federal money to help low-income Montanans pay their winter heating bills. Individuals who qualify for fuel bill assistance have the payments made on their behalf directly to the utility or fuel vendor. SRS contracts with appropriate community-based organizations in the state to provide outreach and receive and process applications for the program. The local contractors determine household eligibility and benefit awards under new rules for the program, which were adopted by SRS in 1982. These rules outline income limits, household size, and other eligibility criteria. Income limits under the program are $7,775 for a family of two and $11,625 for a family of four.

In 1981-82, approximately 14,000 households in Montana received almost $6 million in federal funds to help pay their fuel bills under the program. Montana is expected to have $11.1 million to allocate to recipients during the 1982-83 heating season. However, Congress may reduce funding for the Low Income Energy Assistance Program this winter. Financing for the program comes partly from the windfall profits tax on oil enacted by Congress in 1980.

5.15. UNIVERSITY SYSTEM

Several units in the Montana university system are currently involved in energy-related research projects. This research is summarized in the following subsections.

5.15.1. University of Montana

The University of Montana (UM) has a long history of energy-related research. Its studies are conducted by the Wood Chemistry Laboratory, School of Forestry, Department of Geology, Environmental Studies Laboratory, and the School of Business Administration. Current funds from grants and contracts for energy-related research are approximately $1 million a year. In addition, UM has an active program in energy-related water research through the Montana Water Resources Research Center (see section 5.15.4.).

Current studies emphasize the energy value in wood and destruction of that resource by forest fires. In the environmental area, UM has researched the potential impact of coal-fired electric generating plants and reclamation of surface mining properties. Sociologists at UM have studied value issues in energy resource development, and UM geologists have investigated the state's uranium and coal mining potential. The Bureau of Business and Economic Research is conducting studies of forest products and other energy sources and their relation to the economic well-being of the state and the region.

5.15.2. Montana State University

Energy-related research at Montana State University (MSU) covers several major areas. The coal research program includes coal liquefaction, monitoring, control, and simulation of advanced combustion. Reclamation, transportation, water resources, and environmental and socioeconomic impact studies are central to this research. Range resource systems are being evaluated to understand the impacts of emissions from the coal-fired power plants at Colstrip, Montana. The biofuel research program emphasizes biogas and ethanol production from agricultural biomass. An important adjunct to this research is by-product (food) research involving Montana cereal grains and other crops. Projects on fuel cell technology, solar and wind energy, and geothermal potential are in progress. More than half the MSU research centers on the energy problems of Montana and the region.

5.15.3. Montana College of Mineral Science and Technology

Energy-related research at the Montana College of Mineral Science and Technology (Montana Tech) is conducted by the Montana Bureau of Mines and Geology (see following section), the Montana Mining and Mineral Resources Research Center, and by faculty in several academic departments.

Coal studies have been particularly significant and have emphasized the characteristics of coal deposits. This involves considerable drilling, as well as recovery and analysis of the cores produced. Other coal studies have concentrated on drying and mining methods. Water quality problems in tailings ponds have also been investigated.

Geothermal exploration is also being pursued by the Montana Bureau of Mines and Geology and by Montana Tech's Geophysical Engineering Department. Other efforts have looked at metallurgical studies of mineral industry wastes, with energy efficiency and energy conservation as partial goals.

5.15.3.1. Montana Bureau of Mines and Geology

The Montana Bureau of Mines and Geology is a department of Montana Tech. The bureau's director serves as the state geologist. The bureau is responsible for investigating and reporting on the geology and mineral resources of Montana. Through its research, reports, and information services, the bureau contributes to the orderly development and use of the state's mineral, fuel, and ground water resources.

The bureau's Hydrology Division investigates and evaluates Montana's ground water resources. Current programs include monitoring water wells and managing the state's computerized water-data bank; mapping ground water resources; coal field hydrology and hydrogeochemistry; and assessing geothermal resources for their possible application as alternate sources of energy.

The bureau's Geology and Mineral Resources Division performs basic compilation and stratigraphic studies of oil and gas resources, investigates and evaluates coal resources by drilling for the U.S. Geological Survey and Montana regulatory agencies, and maintains an energy information service. Division staff have been actively engaged in a program of coal resource evaluation on state and federal lands in the Northern Powder River Basin and Fort Union region of eastern Montana. An energy map of Montana has been completed on a scale of 1:500,000 showing oil and gas fields, pipelines, coal fields, uranium and thorium, and geothermal data.

A new project which began in 1982 is the investigation of the Heath Oil Shale in central Montana. Core drilling, sampling, and analyses are being conducted for both metals and oil, in cooperation with the U.S. Minerals Management Service and the U.S. Department of Energy.

5.15.4. Montana Water Resources Research Center

The Montana Water Resources Research Center is one of 54 such research institutes located in all 50 states. Established by the Water Resources Research Act of 1964, it operates as a federal-state partnership for the purpose of conducting research and providing information to agencies and private firms that supply water for agriculture, industry, energy, and recreation in Montana. The center, headquartered at Montana State University, carries out its research cooperatively with the University of Montana and the Montana College of Mineral Science and Technology.

The center is completing two reports for DNRC on small-scale hydropower development. The first, *Developing Hydropower in Montana - A Guide to Permitting and Licensing,* is a compilation of the procedures, licenses, permits, and review processes necessary for developing hydropower sites in Montana. The second, *Montana Hydropower: A Manual for Site Developers,* is a state-of-the-art handbook presenting the most recent (April 1982) information on the development of small-scale hydro (50 kW to 5 MW) and includes: 1) engineering data for evaluating feasibility and design; 2) financial information including cost data, power sales, and tax incentives; 3) a glossary of hydropower terminology; and 4) a summary of permitting and licensing requirements for Montana.

A simulator for demonstrating management alternatives for policy makers and for training operations personnel for electric power grids containing hydropower units and baseload fossil fuel generating stations has been developed for use by the Western Area Power Administration.

Another project uses the water resources management simulator to develop a management program for the upper Madison River above the Montana Power Company dam at Ennis Lake. The project will encourage public input and cooperation among the Montana Power Company, Montana Department of Fish, Wildlife and Parks, the U.S. Forest Service, the Montana Department of Health and Environmental Sciences, the Montana Department of Natural Resources and Conservation, and irrigation and recreational interests. The goal is to optimize the release of water from Hebgen Dam for power generation in the upper Madison, subject to irrigation, recreation, and water quality constraints.

Five projects concerning the effects of coal mining on ground water, conducted in cooperation with Montana Tech and MSU, include: 1) the interaction between ground and surface water and acid mine drainage in the Stockett-Sand Coulee area, funded by the Office of Water Research and Technology and the Montana Department of State Lands; 2) ground water monitoring in the vicinity of the East Fork of the Poplar River on the U.S.-Canadian border, funded by the U.S. Geological Survey (USGS); 3) hydrologic studies in areas of potential coal development in Montana, funded by the USGS; 4) investigations of soluble salts in coal overburden and ground water quality in mine spoils areas, funded by the USGS; and 5) evaluation of surface and ground water problems associated with strip mines, funded by the U.S. Environmental Protection Agency and MSU. The Bureau of Mines and Geology at Montana Tech conducted the first four of these studies.

An investigation of the processes contributing to the buildup of microbial growth in pipelines and heat exchangers was conducted at MSU. This research will lead to methods that inhibit microbial growth and improve efficiencies and energy conservation in water and waste-water lines, fossil fuel power plants, and synthetic fuel processes. The study is funded by the National Science Foundation.

A study of the potential impacts of altering the discharge pattern at Hauser Dam is underway at MSU. Montana Power Company is funding this research in conjunction with methods for increasing the power generation in its generating system.

Also, a method for estimating the duration of flow rates of a given magnitude for streams that do not have a long stream-gauging record is being developed for use with feasibility studies at small-scale hydroelectric sites.

REGIONAL ORGANIZATIONS AND ENERGY

6.1. COUNCIL OF ENERGY RESOURCE TRIBES

The Council of Energy Resource Tribes (CERT) represents 34 American Indian tribes. Collectively, these tribes hold a substantial share of western energy resources. Seven of the Montana tribes—Northern Cheyenne, Crow, Blackfeet, Confederated Salish and Kootenai, Assiniboine and Sioux tribes of the Fort Peck Reservation, Chippewa-Cree Tribe of the Rocky Boys Reservation, and the Gros Ventre and Assiniboine tribes of the Fort Belknap Reservation—are members. (Energy development plans that involve Montana's Indian tribes are discussed in chapter 10.)

CERT provides its members with technical and legal assistance on energy-related matters by working directly with individual tribes on specific projects, and by lobbying on energy issues for the tribes in Washington, D.C. Its funds come from a multiagency federal grant and from tribal and private contributions.

CERT was formed as a nonprofit organization in 1975. Its stated goals are:

— to ensure that Indian people receive an equitable return for their resources and are able to use these resources as a foundation upon which to develop stable tribal economies;

— to assist tribes in protecting natural, cultural, and social environments from the adverse impacts of energy development;

— to aid the tribes in acquiring the ability to manage their resources themselves.

CERT has a technical assistance center in Denver, Colorado, and a government liaison office in Washington, D.C. CERT's newsletter, *The CERT Report,* is issued biweekly.

In 1980 Montana's Crow Tribe received a $2.7 million grant from the U.S. Department of Energy (DOE) to study the feasibility of building a synthetic fuels plant on the Crow Reservation (see section 3.1.3.1.). CERT coordinated this study, which was initiated in October 1981 and completed in September 1982. CERT studied the social and environmental impacts of the proposed project and used the Crow synfuels study as a model for an *Environmental Review Guidebook,* a manual developed in 1982 to help tribes speed permitting procedures for their energy development projects.

The guidebook, prepared under a grant from DOE, advocates including the state government in the entire review process to reduce chances of conflicts between state and tribal governments. It establishes a procedure whereby representatives from the tribe, the developer, and state agencies would agree to statements of responsibility and would review information concurrently before an application was submitted.

CERT also conducted a study for the Crow Tribe on the feasibility of constructing a 1,000-megawatt power plant complex on its reservation (see section 3.1.2.2.). This study, funded by DOE, was completed in the fall of 1981.

In the past two years, CERT has completed oil and gas feasibility studies on the Blackfeet Reservation, as well as a complete environmental assessment of the impacts of potential resource development on the reservation. CERT conducted a similar environmental assessment for the Fort Peck Reservation. At the Rocky Boys Reservation, CERT conducted a feasibility study for a geothermal solarium.

In March 1982, CERT established a new Tribal Taxation Policy Forum to provide tribal governments with full information concerning tribal rights, opportunities, and limitations in developing mineral severance taxes. The forum was established following a U.S. Supreme Court decision in January 1982 affirming the authority of Indian tribal governments to impose mineral severance taxes as a "necessary instrument of self-government and territorial management." (See chapter 10 for a more complete discussion of Indian severance taxes.)

The 1977 Surface Mining Control and Reclamation Act (see section 7.5.7.1.) directed the U.S. Department of the Interior to prepare a report and draft legislation enabling Indians to devise regulatory schemes for coal mining on their reservations, should they choose to do so. CERT was contracted to prepare the report, write a legislative proposal, and solicit comments on it. The report will probably be completed in 1983.

CERT currently is proposing to study the feasibility of using liquid carbon dioxide as a transport medium in coal slurry pipelines. CERT is particularly interested in Montana's coal-producing reservations and the Four Corners area of Arizona, New Mexico, Colorado, and Utah, where the Ute Mountain, Navajo, and Southern Ute tribes own vast coal reserves and where reserves of carbon dioxide may exist in large enough quantities for coal slurry use. CERT is awaiting DOE approval to conduct this study.

6.2. NORTHWEST CONSERVATION ACT COALITION

The Northwest Conservation Act Coalition was formed in 1981 to represent agricultural, consumer, labor, environmental, and other organizations from the states of Oregon, Washington, Idaho, and Montana to influence the implementation of the Northwest Power Act (see following section). The coalition coordinates the relevant programs of its members, conducts technical and legal research on their behalf, publicizes the implementation issues and the campaigns of its members, and formulates political strategy to influence regional energy decisions.

The coalition, based in Seattle with an executive director and a small research staff, is governed by a board of directors composed of officers from the member organizations. The coalition began publishing a monthly newsletter in January 1982. The newsletter presents the coalition's perspective on implementation of the Northwest Power Act by the Bonneville Power Administration (BPA) and the Northwest Power Planning Council. It also reports on coalition activities, especially its involvement in BPA rule making and policy formulation.

During its first year, the coalition extensively commented on BPA's proposed billing credit policy, environmental cost and benefit methodology, and wholesale rate environmental impact statement, as well as on the Northwest Power Planning Council's conservation study of direct service industrial customers. The coalition developed a "Model Conservation and Power Plan," which concluded that most of the region's thermal plants under construction or planned for construction will not be needed over the next two decades.

The Northwest Conservation Act Coalition advocated that the regional energy plan adopted by the Power Planning Council in April 1983 should: promote the use of cost-effective and environmentally acceptable conservation and renewable resources; avoid unnecessary thermal power development; aid regional economic development through promotion of labor intensive energy resources and local financing; assure that the financial assistance and local development provisions of the act be made available sooner to those most in need of such provisions, particularly the poor and elderly; promote equitable and resource conservation-based rate structures; and protect the natural environment, including the fish and wildlife resources of the region.

6.3. NORTHWEST POWER PLANNING COUNCIL

The Northwest Power Planning Council (NPPC) was created on April 28, 1981, in accordance with the Pacific Northwest Electric Power Planning and Conservation Act of 1980 (referred to as the Northwest Power Act). The council is a regional body, with two appointed members from each of the member states—Idaho, Montana, Oregon, and Washington. The council is not an agency of the United States government.

The council was authorized by Congress and created by the Northwest states in pursuit of three aims: 1) to encourage conservation and the development of renewable resources while assuring an adequate, efficient, economical, and reliable power supply; 2) to enhance, protect, and mitigate damage to fish and wildlife habitat along the Columbia River and its tributaries; and 3) to provide for broad public participation and consultation in the development of regional power plans and related fish and wildlife programs. The principal responsibility of the NPPC is the preparation and adoption of a Regional Conservation and Electric Power Plan by April 28, 1983.

Background. Since the 1930s, hydroelectric power from the Columbia River and its tributaries has been the mainstay of electric power supply in the Pacific Northwest. Federal hydropower development began with the construction of the Grand Coulee Dam in 1933 and the creation of the Bonneville Power Administration (BPA), a federal agency charged with marketing electric power from the federal Columbia River Power System. By 1964, when a treaty with Canada governing development of the Upper Columbia Basin was concluded, much of the Northwest's vast hydropower potential had been tapped. Today, the Columbia River Power System provides approximately half of the electric power used in the region.

The 1960s saw the beginning of a long and ultimately controversial process to increase the region's hydropower production and supplement it with coal and nuclear power. As energy costs increased in the 1970s, renewable resources also began to be discussed seriously, along with high-efficiency methods of producing electricity such as cogeneration. Conservation became increasingly important, both in practice and in long-range planning.

By 1977 it had become clear that federal legislation was needed to guide the evolution of the regional power supply system. The basic task was to modernize BPA's charter.

Other problems needing attention included: how to allocate the costs of the regional power system as it grew beyond the hydro base; how to preserve the traditional independence of the region's utilities; and how to protect and enhance fish and wildlife in the region's rivers as the hydro system changed.

Northwest Power Act. As the Northwest Power Act emerged from Congress in 1980 to resolve these issues, BPA was assigned a major new role—regional financing agent for acquisition of new and existing nonfederal generating facilities. The act directs BPA to first explore and invest in energy conservation measures, even those costing up to 10 percent more than the next most inexpensive alternative. Renewable resources have second priority. Development of coal-fired and nuclear generation is to be the last priority. This new responsibility is subject to the guidance provided in plans developed by the new Northwest Power Planning Council.

The Act requires the council to prepare a fish and wildlife program for the Columbia River and its tributaries, a 20-year conservation and electric power plan for the region, and other programs and studies relating to the use and supply of electric power in the Northwest. BPA is the principal implementing agency of both the fish and wildlife program and the regional energy plan.

In 1981 the legislatures of Montana, Idaho, Oregon, and Washington each passed legislation authorizing participation in the NPPC. The council's regional office was established in Portland, Oregon. Public sessions were held approximately twice each month to include citizens in all four states in NPPC planning. The Montana Northwest Power Planning Advisory Council was organized by executive order to advise Montana's two governor-appointed representatives to the NPPC. The 15-member advisory council consists of a diverse cross section of Montanans.

Montana's representatives have worked with the state Department of Fish, Wildlife and Parks, resource groups, and the Confederated Salish and Kootenai tribes of northwestern Montana to develop Montana's recommendations to the NPPC for the council's fish and wildlife plan. The Northwest Power Act requires the NPPC to establish a plan for enhancing salmon and steelhead runs that have been reduced by hydroelectric dams.

The council adopted a final plan in November 1982. A key element of the plan is the creation of a "water budget" program that would allocate a volume of water from the Columbia River Basin to be controlled by fish and wildlife agencies and Indian tribes to help improve migration and spawning of salmon, steelhead, and other fish in the basin. The proposal includes establishment of specific dam spill and flow guidelines and improvements in operation of fish ladders. The plan requires that developers of future hydroelectric projects consider all effects on fish and wildlife.

The NPPC accepted Montana's recommendations to include in the plan provisions to limit the drawdown of the Hungry Horse and Libby reservoirs in northwestern Montana, adopt minimum flow standards for the Flathead River at Columbia Falls to ensure successful reproduction of the kokanee salmon, and purchase water rights to protect the Bitterroot River from being dewatered. The NPPC's plan for minimum flow standards in the Columbia River Basin could affect Montana's native fish, such as the cutthroat trout, which need minimum amounts of water at different times than downriver salmon and steelhead. Water-flow requirements also could have an impact on electric rates, because dams might be required to spill water that normally would be used to generate electricity. The NPPC's fish and wildlife plan was combined with the council's final 20-year energy plan.

The NPPC adopted its draft regional power plan in January 1983. The draft plan included a forecast of regional electricity demand, a portfolio of energy resources that will be needed to meet the forecasted demand over the 20-year planning period, and a list of actions that BPA, utilities, local governments, and others could take in the next two years to implement the plan.

The low and high projections of energy requirements fall into a 20-year range of 0.9 to 2.8 percent average annual rate of growth. This range, while avoiding a single "most likely" growth rate, presents the plausible but unlikely bounds of the region's growth and its accompanying energy needs. In terms of energy facilities, this means the region would have to add between 3,500 to 13,000 megawatts (including facilities under construction) over the next 20 years. The NPPC's draft plan emphasized small facilities with short lead times from initial planning to ultimate production of electricity. This will enable the council to postpone decisions to begin expensive construction work on an energy facility until the need for it has actually been proven.

In selecting energy resources to meet energy demand growth, the NPPC proposed, in the high load-growth case, that the resource portfolio be composed of: 5,300 megawatts of conservation, 1,236 megawatts of new hydropower, 500 megawatts of cogeneration, 1,050 megawatts of combustion turbines, and 3,200 megawatts of coal. In the low-growth case, the region would only need 2,100 megawatts of conservation and 59 megawatts of new hydro. The proposed portfolio reflects the priorities set by the Northwest Power Act. In the area of conservation, the NPPC proposed that BPA encourage the adoption of standards for new energy efficient construction. BPA should also begin programs to weatherize existing homes and to improve the efficiency of home appliances and hot water heaters. Conservation programs should also be established for industry, commercial buildings, and irrigated agriculture.

As far as new nuclear plants are concerned, the NPPC assumed that the Washington Public Power Supply System (WPPSS) Units 1,2, and 3 would be completed. The NPPC also dealt with the issue of whether WPPSS Units 4 and 5 or new coal-fired power plants would be a cheaper way to provide power to meet the high load-growth case. The

NPPC's preliminary research indicated that coal plants work better with the hydroelectric system because substantial fuel costs can be saved by shutting coal plants down to take advantage of good water years.

Public hearings were held throughout the Northwest in March 1983 to gather comments on the draft regional energy plan. On April 28, 1983, the NPPC adopted a final version of the plan. The plan, which will be updated every two years, was very similar to the draft plan.

NPPC issues a monthly newsletter called *Northwest Energy News*. Funding for the council is provided by BPA, a self-financing federal agency.

6.4. PACIFIC NORTHWEST UTILITIES CONFERENCE COMMITTEE

The Pacific Northwest Utilities Conference Committee (PNUCC) is a regional planning body that addresses problems in meeting future electric energy requirements in the region. Its membership includes all of the investor- and public-owned electric utilities and agencies that serve customers in Oregon, Washington, Idaho, Montana west of the Continental Divide, and those portions of Nevada, Utah, and Wyoming that lie within the Columbia River drainage basin. The Bonneville Power Administration and the U.S. Army Corps of Engineers are represented on the committee, but are not members.

PNUCC has a full-time planning staff and a System Planning Office, although its functions are principally performed through committees and task forces made up of representatives from member utilities and state and federal agencies.

The major function of the committees and task forces is to develop tools to assist in the planning of regional resources. This includes ways to determine the relative costs and benefits of the different resources available to meet Northwest energy loads. An econometric forecasting model has been in use for several years to serve as a check on the aggregated "Sum of Utilities" forecast published annually in the *West Group Forecast of Loads and Resources*. Work also is underway on the technical planning aspects of conservation.

PNUCC also is actively participating in the activities of the Northwest Power Planning Council (see previous section) on behalf of Northwest utilities and industries. Major areas of interest are generation, resource planning, conservation, load forecasting, system analysis, cogeneration, and fish and wildlife considerations in the regional hydroelectric system.

6.5. WESTERN GOVERNORS' POLICY OFFICE

The Western Governors' Policy Office (WESTPO) is an independent organization of the governors of 13 intermountain and high plains states, including Montana. WESTPO was established by the governors in September 1977 to serve as a regional forum and to strengthen the policy management capacity of state governments, particularly in relation to the federal government and multistate institutions in the western region.

The governors are assisted in developing regional policies and programs by the WESTPO Regional Coordinating Council, composed of the governors' executive assistants. Staff advisory committees, composed of key state personnel, address a number of functional areas: energy, water, agriculture, natural resources, international trade, and related issues.

Current WESTPO activities include monitoring significant legislation, such as bills that limit state severance taxes, and other matters dealing with economic development, energy impact assistance, the Federal Lands Policy Management Act, and the Clean Air Act.

In 1981-82 WESTPO increased its efforts to work with the private sector, including nongovernmental public interest groups. WESTPO sought to develop working relationships with mining, utility, and banking interests, represented by the Western Regional Council, and with environmental groups and others in developing a western governors' position on the Clean Air Act.

During the second half of 1981, more than 40 private sector representatives—including coal producers, railroad executives, and port managers and developers—were involved in the WESTPO-organized Western Coal Export Task Force (CETF). The Western CETF recently completed a joint study (*Western Coal Exports*) in cooperation

with coal-using industries and the governments of Japan, China, and South Korea. This study explores the feasibility of exporting western coal to these Pacific Rim nations.

At their 1981 annual meeting, WESTPO governors expressed their opposition to further federal domestic budget cuts without a significant sorting out of functions between the federal government and the states. The governors also reaffirmed their commitment to pursue shared decision making on all federal mineral leasing and land-use decisions, including energy-related land-use issues, and applauded efforts of the U.S. Department of the Interior requiring federal agencies to comply with state water laws.

During the past two years, the WESTPO governors also:

— opposed the increase of uranium imports in light of the currently depressed domestic industry;

— completed a major study of the manpower requirements of the simultaneous deployment of the MX missile and massive new energy facilities;

— completed a study entitled *Permitting and Siting of Energy Projects: Causes of Delay, State Solutions;*

— developed energy issue papers, including "Large Scale Growth: Energy Impact on Human Services"; "Eligibility Simplification"; and "Low Income Energy Assistance";

— submitted testimony to the U.S. House of Representatives regarding the Low Income Energy Assistance Act.

The WESTPO staff is cooperating with the Four Corners Regional Commission to preserve the western agricultural economy. These efforts have included preparing a feasibility study on low-water, low-energy technologies. WESTPO also continues to cooperate with the programs and activities of the American Agriculture Foundation, which was organized to assist farmers and rural communities in their efforts to produce and use alcohol as a fuel.

WESTPO continues to administer the U.S. Department of Energy's Appropriate Technology Small Grants Program for the Western region, a program to encourage development of small-scale, energy-related technologies.

In 1980 WESTPO initiated a study of the cumulative impact of major public works, energy development, and national security investments in the West. The study includes an inventory of existing and planned energy and mineral facilities and their employment and production capacities. *Resource Activity in the West,* which will be going into its second edition in 1983, is intended to provide the governors, as well as others associated with resource development, with a better understanding of the total development picture for the West.

WESTPO publishes a periodic newsletter, the *WESTPO Wrapup,* which features the governors' activities and positions on energy issues.

6.6. WESTERN INTERSTATE ENERGY BOARD/WESTERN INTERSTATE NUCLEAR BOARD

The Western Interstate Energy Board/Western Interstate Nuclear Board is an organization of 16 western states (including Montana) with one board member from each state, appointed by the governor. The board, which is state funded and is legally based on the Western Interstate Nuclear Compact, takes an interest in all issues relating to energy conservation and development.

The board's responsibility has been primarily to establish a state-federal partnership on energy issues. A principal focus in the past three years has been the federal coal management program developed by the U.S. Department of the Interior (USDI). The board's staff and a committee of state officials from the six major coal-producing states in the West—Montana, Colorado, North Dakota, Wyoming, Utah, and New Mexico—have cooperated with USDI officials in writing and implementing the federal coal management program (see section 11.4.). After hearing the concerns of the western governors, the Secretary of the Interior agreed in November 1982 to give the states more of a role in federal coal-leasing decisions. The board also is working to extend the principle of shared state-federal decision making to other federal land and resource management decisions.

Other recent activities of the board include:

— laying the groundwork for the creation of the nation's first interstate compact on low-level radioactive waste disposal—the Northwest Interstate Compact on Low-Level Radioactive Waste Management, of which Montana is a member by executive order;

— assisting the major western coal states in presenting their concerns about coal mine reclamation to the federal Office of Surface Mining;

— working with the U.S. Bureau of Land Management and U.S. Forest Service to establish procedures for joint state and federal action on energy corridors;

— exchanging information among the states about emergency plans to deal with fuel shortages.

The board has also been involved in uranium mining and milling issues, geothermal development, air quality issues

related to coal-fired power plants, synthetic fuels development, the West Coast "oil surplus" and related transportation issues, state electrical energy forecasting, reviewing federal efforts to screen areas for high-level radioactive waste disposal facilities, and coordination of state energy conservation and solar energy programs.

An important function of the board is to warn the member states of forthcoming federal energy initiatives in time to allow them to respond. This is accomplished through a biweekly newsletter (*Western Energy Update*), staff analyses of specific policy issues, and special reports distributed to over 200 state government agencies.

The board also takes policy positions on current issues and in the past year has adopted positions on: mineral leasing in wilderness areas; allocation of funds from U.S. Department of Energy settlements or judgments with oil companies regarding alleged overcharges; the requisites for federal emergency preparedness legislation to deal with fuel shortages; and congressional ratification of the Northwest Low-Level Radioactive Waste Compact.

FEDERAL AGENCY ENERGY-RELATED PROGRAMS

7.1. U.S. DEPARTMENT OF AGRICULTURE

7.1.1. Forest Service

The U.S. Forest Service (USFS) actively participates in the planning and evaluation of proposed energy projects on national forest system lands in Montana. The agency also is responsible for ensuring the proper construction and maintenance of approved energy facilities on those lands. The USFS' current energy-related activities in Montana include:

— preparing the environmental impact statement (EIS) for the Garrison-Spokane section of a 500-kilovolt transmission line carrying power from Colstrip, Montana. The Bonneville Power Administration (BPA) serves as the project's lead agency, with the USFS participating as a cooperating agency.

— project planning and construction coordination for the Townsend-Garrison section of BPA's 500-kilovolt transmission lines, and for Montana Power Company's construction of those lines between Colstrip and Townsend.

— project planning and construction coordination for the 115-kilovolt transmission line from Mack's Inn, Idaho, to West Yellowstone, Montana. The line was proposed by the Fall River Electric Cooperative. BPA is constructing the line.

— project planning and construction coordination for the 230-kilovolt Libby Integration transmission line. BPA is constructing the line.

— working as a cooperating agency with the Federal Energy Regulatory Commission (FERC) in assessing the feasibility of the proposed Kootenai Falls hydroelectric project. The USFS has provided information for the EIS prepared by the State of Montana.

— cooperating with the U.S. Bureau of Land Management (BLM) in monitoring activities of the proposed Northern Tier Pipeline project. If the project is approved, the USFS will have a major role in monitoring the pipeline facilities on national forest lands.

— considering applications for approximately 65 small hydropower facilities involving new installations as well as the addition of generating facilities at some existing dams.

— implementing interagency utility-transportation corridor planning and management with the BLM and the State of Montana. Direction is given by the Montana Natural Resource Council (Governor of Montana, Regional Forester, and the Montana BLM director—see section 5.5.1.).

— implementing an energy conservation program aimed at reducing energy consumption 20 percent below the 1975 level by 1985. This program includes energy conservation in USFS facilities, vehicles, and activities.

— exploring the possibilities for using wood residues as a fuel for steam electric generation and as a raw material for the production of wood alcohol.

The USFS also manages most of the acreage in Montana's Overthrust Belt, a geological province that overlays potentially large deposits of oil and gas. Recent geophysical exploration, as well as significant discoveries in the belt in Canada, Wyoming, and Utah, have renewed interest in the 8.5 million acres under lease or application in the national forests in Montana. Those lands within designated wilderness areas, RARE II recommended wilderness areas, and congressionally designated wilderness study areas have been considered by the USFS for leasing through an environmental analysis process and in accord with the National Environmental Policy Act. However, the USFS stopped all studies related to oil and gas leasing in wilderness areas when funding for this work was terminated by Congress in December 1982 (see section 4.2.10.).

7.1.1.1. Surface Environment and Mining Program

The Surface Environment and Mining (SEAM) Program was a research, development, and applications effort started by the USFS in 1974 and completed in September 1979. It initiated over 160 research studies, 11 demonstration areas, and several planning tools to help assess and mitigate the social, economic, administrative, and environmental impacts of mining and reclamation. By the end of 1979, all appropriate SEAM activities were incorporated into the operational branches of the USFS. In addition to the scientific publications and reports produced, a set of *User Guides* was developed for vegetation, soils, hydrological, engineering, sociological, and economic assessments. A *Land Manager's Handbook on Minerals Development* also was prepared. Funding in 1982 continued certain elements of the research program and maintained the operational aspects of the SEAM program.

7.2. U.S. ARMY CORPS OF ENGINEERS

The U.S. Army Corps of Engineers represents the Secretary of the Army in water resource planning, construction, and operation. While the corps' primary responsibilities are for navigation and flood control, under the multiple purpose concept of water resource development, its projects are designed to serve as many additional functions as practicable. One of the most important of these functions is hydroelectric generation. Within Montana, the corps operates hydroelectric facilities at Libby and Fort Peck. The possible addition of new generation at Libby is discussed in section 3.2.1.4. Although the corps continues its feasibility studies for additional generation at Fort Peck (see section 3.2.1.2.), its Clark Fork-Flathead Hydropower Study was discontinued in 1979 when Congress voted to delete study funds from the corps' 1980 budget.

7.2.1. National Hydroelectric Power Study

In 1982 the Corps of Engineers completed a detailed assessment of the nation's hydroelectric resources as part of the National Hydroelectric Power Study (NHPS) authorized by the Water Resources Development Act of 1976. The study was designed to: 1) provide a current and comprehensive estimate of the potential and need for incremental growth or new generation at existing dams and other water resource projects, as well as for undeveloped sites in the United States; 2) analyze existing policies regarding hydropower; 3) identify the environmental and social effects of increased hydropower development; and 4) recommend hydropower programs and policies to Congress.

Through a four-step screening process, each of the potential hydropower sites was analyzed to determine its physical potential, economic feasibility, environmental impacts, and acceptability for development. These screenings sharply reduced the number of potential sites originally proposed by the corps. Potential projects with less than a 1-megawatt potential were not considered in the study. If a state opposed potential projects within its borders, those projects also were deleted from the final listing. In total, 23 existing and nine undeveloped sites in Montana survived the screening and have been identified for further study. A review of all sites under consideration was made by representatives of DNRC, the Department of Health and Environmental Sciences, and the Department of Fish, Wildlife and Parks.

The corps completed its draft report on the region's hydropower potential in August 1981. The final national report, which will be submitted to Congress, was completed in October 1982.

7.3. U.S. DEPARTMENT OF ENERGY

The U.S. Department of Energy (DOE) was established in 1978 to consolidate the many energy activities dispersed throughout the federal government. Principal functions transferred to the department included those of the Energy Research and Development Administration, Federal Energy Administration, and Federal Power Commission, as well as selected functions of the departments of the Interior, Navy, and Commerce, and the Interstate Commerce Commission. DOE now coordinates the activities of five federal power administrations, including the Bonneville Power Administration (BPA) and the Western Area Power Administration (WAPA). (The power marketing and transmission functions of BPA and WAPA are described in sections 7.3.3. and 7.3.4., respectively.) DOE oversees many of the programs and regulatory measures included in the Energy Security Act of 1980, the Emergency Energy Conservation Act of 1979, and the Crude Oil Windfall Profits Tax Act of 1980. In addition, DOE administers most of the programs of the National Energy Act of 1978, which is summarized in the following section.

Formerly, Montana affairs were administered by DOE's Region VIII office in Denver, Colorado. Following a departmental reorganization, this office, now called the Denver Support Office, was placed under the jurisdiction of DOE's Idaho Operations Office in Idaho Falls. The manager of the Idaho Operations Office is the principal spokesperson for the Secretary of Energy within the region and works with state and local officials to relay national energy goals and regulations and, in turn, communicates regional concerns about federal energy programs to the secretary.

The Denver Support Office administers DOE grant programs in Montana, Idaho, Colorado, North Dakota, South Dakota, Utah, and Wyoming. These programs include the following:

— State Energy Conservation Program;

— Supplementary State Energy Conservation Program;

— Institutional Buildings Grants Program (schools and hospitals) under the National Energy Act of 1978;

— Weatherization Program under the Energy Conservation and Existing Buildings Act of 1976;

— Energy Extension Service under the National Energy Extension Service Act of 1977.

The present administration has advocated the dismant-

ling of DOE on the grounds that DOE's "overregulation" of energy producers has hampered the nation's attempt to become energy self-sufficient and that substantial savings could be realized by reshuffling DOE functions to other federal agencies.

In May 1982, President Reagan submitted to Congress a bill that would dissolve DOE and move the majority of its programs to the Department of Commerce. Congress has not acted on the bill, however, because of congressional concerns that it would minimize the importance of energy in national policy, hurt alternative energy programs, and save no money.

7.3.1. National Energy Act of 1978

In 1978 Congress passed five major pieces of energy legislation (known collectively as the National Energy Act) that cover the following areas: energy conservation; coal conversion; public utility rate reform; natural gas policy; and tax credits for energy-saving investments.

Energy Conservation. The energy conservation section (known as the National Energy Conservation Policy Act) provides for the following programs: 1) weatherization grants for insulating low-income homes; 2) annual grants to states for three years to improve the energy efficiency of schools, hospitals, and municipal buildings; 3) a three-year program for installing solar heating and cooling systems in federal buildings and a program to purchase photovoltaic energy devices; 4) federally subsidized energy conservation loans to elderly and middle-income families; and 5) programs requiring utilities to inform their customers of suggested energy conservation and solar energy measures, with projected cost and energy-saving data.

Although the present administration has proposed to eliminate most of these conservation programs by cutting current levels of funding, it has not succeeded in gaining Congressional approval of its budget cuts.

Coal conversion. The coal conversion section (known as the Powerplant and Industrial Fuel Use Act) prohibits use of oil or natural gas in new utility generation facilities or in new industrial boilers, gas turbines, internal combustion power plants, and combined cycle units with a capacity greater than 10 megawatts, unless DOE grants exemptions. For existing power plants and industrial facilities, DOE may require coal-capable facilities, individually or in categories, to convert to coal and other fuel use, or to use coal-oil mixtures or alternative fuels. Utilities will be prohibited from using natural gas after January 1, 1990. The law gives supplemental authority to prohibit use of natural gas in small boilers for space heating. In addition, a loan program assists companies in raising funds necessary for pollution control.

Public utility rate reform. The public utility rate reform section (called the Public Utilities Regulatory Policies Act—PURPA) establishes 11 rate-making standards as guidelines for states to encourage conservation, including time-of-day rates, seasonal rates, cost of service pricing, and interruptible rates. State regulatory authorities and utilities must formally consider the standards within prescribed periods. DOE may intervene in state rate-making cases to ensure that standards are considered.

The Federal Energy Regulatory Commission (FERC) must prescribe rules favoring industrial cogeneration facilities and requiring utilities to buy or sell cogenerated power at fair rates. FERC may require physical connections of electric power transmission facilities and order utilities to provide transmission services between noncontiguous utilities.

PURPA requires a utility to pay small power producers the"full avoided cost" for power—that is, the same price it would have to pay to buy the power from conventional sources or to produce it themselves. Utilities have recently argued that they should only have to pay 90 percent of the full avoided cost and have taken the matter to federal court. The case probably will be heard by the U.S. Supreme Court in late 1982, and all terms of payments under PURPA will be called into question. In August 1982, an amendment was being prepared for Congress that would clarify the language in PURPA, with the hope of avoiding the impending litigation.

Natural Gas. The natural gas section (known as the Natural Gas Policy Act) creates a single national market for natural gas. Previous regulations applied only to gas sold outside a producing state in interstate pipelines. Thus, 40 percent of the natural gas produced had been out of the reach of the interstate market, partly because of the higher prices available inside the producing state. Under the old regulatory regime, as intrastate markets became saturated, a glut developed inside the producing states. This regime led to an annual excess of approximately a trillion cubic feet of gas production. That gas can now flow across the country and into the interstate market.

Under the law, initial price increases in natural gas are applied to large industries using natural gas as a boiler fuel. Increases in gas prices for homes, schools, and hospitals are smaller. With more gas flowing to the interstate market, gas hookups for some existing homes and for new housing are permitted, reducing the home heating load on imported oil.

The law establishes an end to price controls on new natural gas in 1985. At that time, either the president or Congress will have the authority to reimpose controls for up to 18 months.

Energy Tax. The energy tax section (known as the Energy Tax Act) gives tax credits to homeowners and businesses that encourage conservation of scarce fuels and that rely to a greater degree on energy sources that are renewable and more plentiful. Tax credits are given to:

— homeowners who install insulation, storm doors and windows, caulking, weatherstripping, modified flue openings, automatic furnace ignition systems, clock thermostats, and other energy-saving devices;

— homeowners who install solar, wind, or geothermal energy equipment;

— businesses that install certain energy-saving and energy-producing equipment.

In addition, a tax is levied on "gas-guzzling" automobiles that fall substantially below federally mandated mileage standards.

The present administration had sought to eliminate tax credits for both homeowners and businesses; however, because of strong opposition in Congress, it currently is seeking to eliminate only the business credits.

7.3.2. Federal Energy Regulatory Commission

The Federal Energy Regulatory Commission (FERC) is an independent, five-member commission within the Department of Energy that regulates certain aspects of the natural gas, electric utility, hydroelectric power, and oil pipeline industries. This section describes FERC's hydropower licensing program.

FERC, formerly the Federal Power Commission, is the federal agency that issues preliminary permits, licenses, and grants exemptions from licensing for the construction and operation of nonfederal hydroelectric projects.

A hydro project falls within FERC's jurisdiction and requires a license or a license exemption if the project either:

— occupies federal lands in whole or in part;

— is located on navigable waters of the United States;

— uses surplus water or water power from a federal dam; or

— will connect with utility systems that affect interstate or foreign commerce.

Potential hydropower developers may elect, as a first step, to apply for FERC's preliminary permit, which protects their license application priority for a particular site for up to three years while they study the feasibility of a hydro project at that site and apply for a license or license exemption. A preliminary permit is not required to develop a project; therefore, the developer may choose to file directly for either a license or an exemption from licensing. A preliminary permit does not authorize construction.

FERC issues licenses to construct and operate hydropower projects for a term of up to 50 years. A project is designated "minor" if it would have a total generating capacity of 1.5 megawatts or less, or "major" if it would have a total generating capacity of more than 1.5 megawatts. FERC has categorized proposed projects according to their level of complexity and potential impact as follows:

— *Major unconstructed projects and major modified projects greater than 5 megawatts.* A "major unconstructed project" is one that would tap the hydroelectric power potential of a dam that, at the time the application is filed, is not constructed. A "major modified project" is one that would alter an existing project and result in a significant increase in the surface area or elevation of an impoundment, or would produce a significant environmental impact.

— *Major projects greater than 5 megawatts at existing dams.* These are facilities that would tap the hydroelectric power potential of existing dams and would not involve major alterations.

— *Major and minor projects of 5 megawatts or less.*

A "short form" license application is used for all projects of 5 megawatts or less. License applications for projects over 5 megawatts are considerably more extensive; different information is required for projects at existing dams and for proposed unconstructed projects.

The Energy Security Act of 1980 gave FERC the discretion to exempt certain hydropower projects from licensing in order to encourage rapid development of small hydropower sources. To qualify for a licensing exemption, a hydropower project must have a proposed installed capacity of 5 megawatts or less, and must be planned for an existing nonfederal dam or a natural water feature that does not require a dam. The project also must meet other criteria that, in general, grant the exemption only where the project would not affect stream flow and where it would not have a significant impact on the environment. FERC's exemption does not exempt a project from other federal, state, or local permitting requirements. FERC also may grant an exemption for small conduit hydroelectric facilities with a total generating capacity of 15 megawatts or less. These facilities must be on nonfederal lands and must use only the hydroelectric potential of a man-made conduit that was originally intended for purposes other than power generation.

FERC's license exemption and other factors (including a section of the National Energy Act that requires utilities to purchase hydropower, the 1980 Windfall Profits Tax, which gives investors a 21 percent credit for investing in hydropower projects, low-interest DOE loans for hydropower developers with preliminary permits for planning and feasibility studies, and a 1981 Montana law that allows hydropower developers to obtain revenue bonds from cities or counties) have resulted in more than 50 applications for FERC preliminary permits in Montana, as of February 1983. (See table VII-1 for a list of applications by county.) FERC has given preference status to cities and states for small-scale hydropower development. As a result, several municipalities have joined private firms in making joint applications for hydropower development in Montana.

Projects in Montana pending a major license from FERC include Montana Power Company's proposed project at Carter Ferry on the Missouri (see section 3.2.2.1.) and Northern Lights, Inc.'s proposed dam at Kootenai Falls (see section 3.2.2.2.). Both proposals have received preliminary permits from FERC. Montana Power Company's permit allows the company to study project feasibility at the Carter site until July 1984. Northern Lights has completed its studies for the Kootenai Falls

TABLE VII-1
APPLICATIONS FOR FEDERAL ENERGY REGULATORY COMMISSION PRELIMINARY PERMITS FOR DEVELOPMENT OF HYDROELECTRIC FACILITIES IN MONTANA

(as of February 1983)

County	Number of Sites filed on	Number of Pending Applications	Number of Preliminary Permits or License Exemptions Issued	Total Projected Capacity from Sites with Pending or Issued Permits or License Exemptions[1] (megawatts)
Beaverhead	1	0	1	5.00
Big Horn	2	3	1	7.72
Broadwater	1	0	1	9.76
Carbon	1	0	1	1.20
Chouteau	1	0	1	75.00[2]
Flathead	1	0	1	.35
Gallatin	1	0	1	1.15
Glacier	1	1	0	2.00
Hill	1	4	0	1.40
Jefferson	1	1	0	4.00
Lake	18	6	12	14.27
Lewis and Clark	2	1	1	12.10
Liberty	1	1	0	8.00
Lincoln	12	1	11	8.91
Madison	2	0	2	25.00
Missoula	1	0	1	0.93
Pondera	1	0	1	4.30
Ravalli	2	0	2	5.77
Sanders	2	1	1	5.82
Stillwater	1	0	1	4.30
Teton	2	0	2	11.87
Wheatland	1	0	1	2.60
TOTAL FOR STATE	**56**	**19**	**42**	**211.45**

[1] For sites with more than one application, only figures for the smallest facility were included in capacity totals.
[2] This permit is for the Montana Power Company's proposed Carter Ferry hydroelectric facility.

SOURCE: Energy Division, DNRC.

dam. FERC began administrative hearings on the project in August 1982.

Several proposed projects at state-owned sites also are pending FERC licensing. (See section 5.10.4.1. for a discussion of these projects.)

7.3.3. Bonneville Power Administration

The Bonneville Power Administration (BPA) is an agency in the Department of Energy. It was originally formed under the Bonneville Project Act of 1937 as the marketing agency of the Department of the Interior for power generated at Bonneville Dam on the Columbia River. Since then, through administrative action and legislation, BPA has become the power marketing agency for most of the federal hydroelectric projects in the Pacific Northwest.

These federal projects are constructed and operated by other federal agencies—the U.S. Army Corps of Engineers and the Bureau of Reclamation. BPA builds and maintains the transmission lines and substation facilities necessary to make electrical power from these projects available to public and private utilities and industrial customers throughout the Pacific Northwest and, subject to Northwest priorities, to customers in adjacent regions.

Through its connections with the principal generating utilities of the Northwest Power Pool, the BPA transmission network provides the capacity and wheeling capability necessary for operating the Power Pool and for carrying out the requirements of the Pacific Northwest Coordination Agreement.

The utilities serving western Montana that buy power from BPA are the Montana Power Company, the Flathead

Irrigation Project, Pacific Power and Light Company, and seven rural electric cooperatives.

BPA has a district office in Missoula, Montana. Its headquarters is in Portland, Oregon.

Pacific Northwest Electric Power Planning and Conservation Act. On December 5, 1980, the president signed into law the Pacific Northwest Electric Power Planning and Conservation Act of 1980. The act, which is discussed in more detail in section 6.3., substantially broadens BPA's authority and responsibilities. It assigns BPA a major new role: to act as a regional utility to finance and acquire new energy resources. It directs BPA to seek acquisition of sufficient power resources, starting with conservation, to meet its contractual obligations. BPA must involve the public in considering any major energy resource contract.

The act also requires BPA to continue to observe the traditional preference rights of the Pacific Northwest's public utilities and cooperatives, with an assurance that their power costs as a result of the Northwest Power Act will not exceed what they would have been without the act. If that situation does arise, BPA is to implement a "rate ceiling" formula for preference customers, whereby non-preference customers could be subject to a surcharge.

The act also allows BPA to offer a block of low-cost electricity to residential and small farm customers of investor-owned utilities in exchange for an equivalent amount of power. This exchange is phased in over a five-year period.

BPA is to offer its existing direct-service industrial customers new 20-year contracts at substantially higher rates than they paid before the act was passed. In effect, these higher rates will compensate for the lower rates afforded to the domestic and small farm customers of investor-owned utilities.

Following are some of the principal requirements of the Northwest Power Act that BPA addressed in 1981 and 1982:

— negotiations of new long-term power sales contracts to existing or potential BPA customers;

— formulation of standards and criteria with respect to BPA resource acquisition—including possible financial assistance to sponsors of renewable energy resources, cogeneration, and projects with high fuel-conversion efficiency;

— development of contractual provisions and general guidelines related to the protection, mitigation, and enhancement of fish and wildlife resources on the Columbia River and its tributaries;

— liaison with and assistance to the Northwest Power Planning Council (see section 6.3.);

— establishment of state and local government assistance programs;

— development of methodologies with regard to billing credits, average system cost, and the determination of resource cost-effectiveness;

— quantification of the environmental effects posed by various BPA actions in carrying out the provisions of the act;

— refinement and expansion of public involvement strategies and procedures;

— development of a near-term resource acquisition policy and a resource displacement policy;

— development of a regional electrical energy forecast.

In August 1982, BPA proposed a wholesale rate increase of 60 percent for public utilities and private utilities' small farm and residential customers, and 50 percent for its direct-service industrial customers. These rate increases, based on BPA's projections of a 1.6 percent annual energy demand increase until the year 2000, took effect in October 1982.

Memorandums of Understanding. In August 1982, following conflicts between BPA and the State of Montana over the siting of BPA's transmission lines in Montana (see section 11.6.), BPA and the state signed two Memorandums of Understanding. The memorandums say that BPA and the state recognize the need to develop agreements in areas of mutual concern, such as the responsibilities of each in facility siting, conservation, renewable resource acquisition, cultural resources, research and demonstration, information services, and fish and wildlife programs. The state and BPA have agreed to hold annual meetings to keep each other apprised of activities in areas of mutual concern. Local, state, and federal officials, Indian tribes, and other interested persons will be invited to attend these meetings, at which policies, future planning, resource acquisition, renewable energy and conservation programs, NPPC activities, fish and wildlife programs, and transmission line health and safety matters will be discussed. BPA and the state will also jointly study and evaluate alternative locations for transmission lines hereafter proposed to be constructed and owned by BPA within the state of Montana.

7.3.4. Western Area Power Administration

The Western Area Power Administration (WAPA) was established in December 1977 pursuant to Section 302 of Public Law 95-91, the Department of Energy Organization Act. WAPA is responsible for the federal electric power marketing and transmission lines in 15 central and western states, including Montana east of the Continental Divide. WAPA sells power to 477 customers including electric power cooperatives, municipalities, public utility districts, private utilities, federal and state agencies, and irrigation districts. (See table IX-1 in section 9.8.5. for a list of electric cooperatives in Montana that purchase power from WAPA.)

WAPA is responsible for the operation and maintenance of transmission lines, substations, and appurtenant power facilities within its geographic area, as well as for constructing, operating, and maintaining federal transmission

facilities that may be authorized in the future. Section 3.3.4. describes transmission lines within Montana that will be constructed and operated by WAPA.

WAPA maintains a district office in Fort Peck and an area office in Billings. Its headquarters is in Golden, Colorado.

The Billings area office is responsible for marketing power from the Bureau of Reclamation and the U.S. Army Corps of Engineers power plants of the Pick-Sloan Missouri Basin Program in the states of Montana (east of the Continental Divide), North Dakota, South Dakota, western Minnesota, western Iowa, and eastern Nebraska.

In the last two years, WAPA has:

— pursued an ongoing oil conservation program;

— continued planning and preconstruction activities for the Miles City AC-DC Converter Station, which will provide a 200-megawatt connection between eastern and western transmission systems (see section 3.3.4.3.);

— participated with the U.S. Army Corps of Engineers in an assessment of the nation's hydroelectric resources, providing marketing and transmission data for the corps' National Hydroelectric Power Study (see section 7.2.1.);

— implemented the customer-oriented portion of its Conservation and Renewable Energy Program, the objectives of which are to increase energy production from renewable resources, reduce the nation's dependence on foreign oil, improve efficiency in energy use, and reduce energy consumption. WAPA is offering technical assistance to its customers in implementing their own conservation and renewable energy programs;

— began an equipment loan program for wind anemometers, loaning equipment to its customers free of charge for one to three years. Data obtained from different locations will provide a basis for site selection and further investigation of wind turbine generators;

— continued an investigation of a possible joint venture by industry and WAPA customers of a commercial wind project—possibly a wind farm—that would help satisfy WAPA's purchased power requirements;

— completed the Montana and South Dakota portions of the 328-mile-long Miles City-New Underwood 230-kilovolt transmission line, the first major transmission project undertaken by WAPA since its establishment;

— continued preconstruction activities, including preparation of a draft EIS, for the replacement of the Fort Peck-Havre 161-kilovolt line (see section 3.3.4.2.); and

— initiated corridor planning studies and an EIS for the Great Falls-Conrad 115-kilovolt transmission line (see section 3.3.4.1.). The draft EIS for this project is expected to be issued early in 1983.

In the fall of 1982, DNRC began negotiations with WAPA concerning the state siting requirements for the Fort Peck-Havre transmission line. The department already has agreed with WAPA that state siting considerations for the Great Falls-Conrad line will fall within the scope of WAPA's draft EIS on that project. This arrangement is indicative of the state's and WAPA's willingness to cooperate from the start on future projects of mutual concern. (See section 11.6. for a more complete discussion of federal-state relationships with regard to energy development proposals.)

7.4. U.S. ENVIRONMENTAL PROTECTION AGENCY

The Environmental Protection Agency (EPA) Region VIII headquarters in Denver serves Montana, Wyoming, Colorado, North Dakota, South Dakota, and Utah. In 1978 EPA opened an office in Helena to coordinate EPA programs within Montana. The office is staffed with specialists in the areas of water pollution, air pollution, hazardous wastes, toxic substances, and pesticides.

The Montana office of EPA provides assistance to the state, industry, the public, and other agencies on energy resources and activities within Montana. In addition, the office coordinates permitting of federal and state energy activities relating to permits required under statutes administered by EPA. These permits include Prevention of Significant Deterioration (PSD), National Pollutant Discharge Elimination System (NPDES), Dredge and Fill (Section 404), Hazardous Waste, and Underground Injection Control (UIC). Since NPDES and Hazardous Waste Programs have been delegated to the Montana Department of Health and Environmental Sciences (DHES), the state takes the lead role in these programs. In May 1983, the Air Quality Bureau of DHES received authority to administer the PSD program in Montana (see section 5.6.1.).

The Montana office is the first point of contact within EPA for questions concerning energy facilities and activities in the state. The office coordinates questions with DHES and EPA's Region VIII office, which has a region-wide energy coordinating function within the federal Office of Management Systems and Analysis. The regional office also offers technical and policy support and assistance to the Montana office in all energy-related activities.

7.5. U.S. DEPARTMENT OF THE INTERIOR

The federal government manages approximately one-third of the nation's land and coal reserves. Congress has the constitutional authority to control the use and disposition of these lands, and has delegated to the Secretary of the Interior the responsibility for administering most of the public lands and virtually all of the minerals under public ownership. The following sections describe the current energy-related activities of a number of agencies in the Department of the Interior: Fish and Wildlife Service; Geological Survey; Bureau of Indian Affairs; Bureau of Land Management; Minerals Management Service; Bureau of Reclamation; and the Office of Surface Mining, Reclamation and Enforcement.

7.5.1. Fish and Wildlife Service

The U.S. Fish and Wildlife Service (FWS) has primary responsibility for protecting and enhancing the nation's wildlife resource. Since the Surface Mining Control and Reclamation Act was passed in 1977, FWS has emphasized developing and analyzing fish and wildlife data to determine the most acceptable means of coal development and resource protection. FWS has both research and operational coal programs. A principal component of the FWS research effort is the Biological Services Program, which was established within the FWS to supply scientific information and methodologies on key environmental issues that affect fish and wildlife resources and their supporting ecosystems. Projects have been initiated in the following areas: coal extraction and conversion; power plants; mineral development; water resource analysis, including stream alterations and Western water allocation, the National Wetland Inventory, habitat classification and evaluation; inventory and data management systems; and information management.

The Biological Services Program is administered by: FWS's Office of Biological Services in Washington, D.C., which is responsible for overall planning and management; national teams, which provide the program's central scientific and technical expertise and arrange for development of information and technology by contracting with states, universities, consulting firms, and others; regional teams, which provide local expertise and are a link between the national teams and the problems at the operating level; and staff at FWS research facilities. Montana is served by the Western Energy and Land Use Team (WELUT), which is headquartered in Fort Collins, Colorado.

The FWS coal operations program is implemented by the FWS regions with programmatic guidance from the agency's Branch of Coal and Mineral Operations of the Division of Ecological Services in Washington, D.C.

Recent FWS participation in the federal coal program has included: assistance to the Bureau of Land Management on land-use planning, environmental analyses, and coal lease activity planning; assistance to the federal Office of Surface Mining (OSM) in the review of mining and reclamation plans; early planning assistance to the coal industry; and assistance to OSM in its abandoned mine lands programs. FWS also helped develop fish and wildlife criteria for identifying federal lands unsuitable for coal leasing, as well as a computer-based Rapid Assessment Method for analyzing fish and wildlife resource information in coal demand areas. These programs included: the expansion of the FWS Plant Information Network (an operational computer information system about plant species useful for surface mine reclamation) to include the coal regions of Wyoming and Montana; development of estimates of breeding bird densities on Montana and Wyoming coal lands; and a synthesis of data on ecological baseline study methods and procedures and relationships of wildlife species to surface mining.

FWS refined and expanded the habitat evaluation procedures to be used by developers in project planning, predictions of fish and wildlife impacts, and analyses of ways to minimize those impacts. FWS has developed more complete methodologies for instream flow assessments; many of these will be used in planning coal development. Through the National Wetland Inventory, maps of the wetlands in the Montana and Wyoming coal fields were produced. These maps will be used in various stages of decisions regarding coal leasing. In addition, FWS recently completed a research project for OSM that identified methods for monitoring fish and wildlife parameters during all phases of coal mining and reclamation.

7.5.2. Geological Survey

The U.S. Geological Survey (USGS) traditionally has been the principal federal agency that collects, analyzes, and presents scientific information about the nation's mineral and water resources.

In January 1982, under a Department of the Interior reorganization, the USGS Conservation Division became the Minerals Management Service (MMS). MMS, a new, separate agency of the Department of the Interior, assumed most of the energy-related functions of the USGS (see section 7.5.5. for a discussion of MMS), with the exception of energy-related hydrologic studies, which remain with the Water Resources Division of USGS. In yet another Department of the Interior reorganization in December 1982, many of MMS's assumed functions were transferred to the Bureau of Land Management. (See the discussion of minerals management in section 7.5.4.)

USGS's Water Resources Division operates largely in cooperation with other federal and nonfederal agencies. Funding comes from interagency federal and state sources. The division is involved in numerous studies of the impacts of coal mining on Montana's water systems. Recent examples of these studies include:

— an ongoing project to detect and document changes in the water systems of southeastern Montana that may be associated with coal mining;

— evaluation of potential hydrological impacts of coal development at selected coal lease sites in eastern Montana;

— documenting impacts of mining and reclamation on ground and surface waters;

— developing the baseline water quality information needed to approve exploration and mining permits.

DNRC, in cooperation with USGS, is conducting a year-long study of small streams in northwestern Montana with potential sites for small-scale hydropower development.

7.5.3. Bureau of Indian Affairs

The Bureau of Indian Affairs (BIA) is responsible for overseeing development of native American natural resources, including fossil fuels, oil, gas, uranium reserves, and hydroelectric resources.

The BIA's Billings Area Office has prepared an environmental impact statement on a proposal to lease and mine coal on the Crow Reservation in southeastern Montana. The Crow Tribe and Shell Oil Company made an agreement in May 1980 to give Shell the right to mine on a 2,560-acre tract containing coal reserves estimated at 210 million tons, and options on acreage that may contain another 500 million tons. The signing of the agreement ended years of court battles between the Crow Tribe and Shell. The final environmental impact statement for the project was released in February 1981. In March 1983, the Department of the Interior approved the coal contract.

In 1979 the BIA released an environmental impact study that addressed the impacts of three assumed levels of coal development on the Crow Reservation and its ceded area. The study, which was designed to serve as an information document for the Crow Tribe, also analyzed the effects of Crow coal development on neighboring communities, such as the bordering Northern Cheyenne Reservation, which has a Class I air quality designation.

In July 1980, the BIA released an environmental assessment on a proposal by the Atlantic Richfield Company (ARCO) to engage in exploration, development, and production activities for oil and gas on the Northern Cheyenne Reservation. Since little is known about the amount of oil and gas on the reservation, the assessment considered the impacts of several hypothetical levels of production. In May 1980, the Cheyenne Tribe and ARCO reached an agreement that called for ARCO to make an initial $6 million payment to the tribe, then another $1.3 million payment for tribal operations. In return, ARCO was to receive exploration and production rights for oil and gas on the 445,000-acre reservation. In a September 1980 referendum election, tribal members approved the oil and gas lease agreement with ARCO.

The BIA intervened in a dispute within the Cheyenne Tribe in 1981. Several hundred members of the tribe had signed a petition requesting the tribal council to hold a referendum on suspending all tribal resource negotiations, including the ARCO contract, until a comprehensive plan on resource negotiations could be prepared and approved by referendum vote (see section 10.7.). The tribal government refused to hold the referendum. The BIA insisted that the referendum be held, and the subsequent referendum upheld the ARCO contract by a wide margin. ARCO currently is drilling a wildcat well on the reservation, about 12 miles southwest of Lame Deer, Montana. This well will test the oil- and gas-producing potential of the Shannon, Muddy, Tensleep, Interlake, and Red River formations.

In July 1982, the BIA proposed requiring an economic impact statement before tribes may impose severance taxes. The proposal followed a U.S. Supreme Court ruling that tribes have the inherent right to impose the severance tax on mining activities. Indian representatives have charged that the proposed regulations improperly interfere in the jurisdiction of tribal councils and that the BIA has no statutory authority to impose such regulations. (See chapter 10 for more discussion of severance taxes on Indian-owned minerals.)

BIA's tribal superintendents are responsible for advertising mineral lease sales on tribal and individually owned Indian lands, for negotiating leases, and for collecting royalties. Superintendents on the Blackfeet and Fort Peck reservations currently are involved in preliminary studies for oil and gas leasing on these reservations.

7.5.4. Bureau of Land Management

The substantial amount of Montana land under federal management has placed federal agencies such as the U.S. Bureau of Land Management (BLM) in a central position of responsibility with regard to energy development. BLM administers more than 8 million acres of land and more than 35.8 million acres of subsurface minerals in Montana.

Programs and activities in Montana, North Dakota, and South Dakota are administered through a BLM state office in Billings, and four district offices in Lewistown, Butte, and Miles City, Montana, and Dickinson, North Dakota. The district offices administer a number of Resource Areas, some of which are removed from the district headquarters.

BLM's single most important energy-related function in Montana is in the area of coal leasing and the related review of federal coal lands to determine areas unsuitable for mining.

Federal Coal Management Program. The U.S. Depart-

ment of the Interior (USDI) conducted a comprehensive review of the federal coal management program in 1981-82 that included a massive rewrite of federal coal leasing regulations. Final regulations were issued by the BLM in August 1982. Montana's governor, along with the governors of eight other western states, made a number of recommendations to the USDI on the effect of the proposed new regulations on western coal-producing states. Section 11.4. describes the current status of the federal coal management program and notes some of the concerns of the western governors. It also discusses the 1982 Powder River Basin coal lease sale and the upcoming 1983 Fort Union Region coal lease sale.

BLM prepared an environmental assessment of a proposed land exchange between BLM and Meridian Land and Minerals Company, a subsidiary of Burlington Northern. The exchange will clear the way for Meridian to build a synthetic fuels plant (see section 3.1.4.1.) and will allow the federal government to acquire a solid block of coal ownership. Both land tracts are near Circle, Montana, and are estimated to contain about 400 million tons of coal. The holdings are now mixed in checkerboard ownership. BLM held public hearings on the exchange in June 1982 and issued an environmental assessment report on the planned action in December 1982. The BLM made a final decision to approve the exchange in April 1983.

Energy Rights of Way. In May 1982, BLM, the U.S. Forest Service, and the State of Montana formed a Corridor Oversight Review Committee (see section 5.10.2.2.2.) to ensure planning consistency and cooperation in major right-of-way and utility transportation corridor projects.

Right-of-way projects involving the BLM in Montana include the Colstrip twin 500-kilovolt transmission lines that will transport power from Colstrip, Montana, to Spokane, Washington. Two segments of the lines—Colstrip to Townsend and Townsend to Garrison—are currently under construction. A draft environmental impact statement on the route for the last segment of the line, from Garrison to Spokane, is currently under review (see section 3.3.1.3.).

The Northern Border Pipeline was completed in September 1982. This 42-inch-diameter natural gas pipeline crosses Phillips, Valley, and Roosevelt counties in Montana on its way to a terminus in Ventura, Iowa. Most of the work on the 184 miles of the pipeline in Montana was completed between May and October of 1981.

The Northern Tier Pipeline Company, which has proposed a 1,500-mile crude oil pipeline (see section 3.1.5.1.) system crossing the states of Washington, Idaho, Montana, North Dakota, and terminating at Clearbrook, Minnesota, was granted a right of way across federal lands in 1980. However, the company must gain federal approval of the centerline within the two-mile-wide right of way before construction can begin. The governor of the State of Washington denied Northern Tier's site certificate in April 1982; the company is continuing negotiations with the state and may reapply for a site certificate in early 1983. The Montana BLM office is the lead federal right-of-way agency for the project.

Minerals Management. In December 1982, the Department of the Interior announced that the nonfinancial onshore mineral leasing functions of its recently created Minerals Management Service (see section 7.5.5.) would be consolidated in the BLM. Those new functions include resource evaluations, determination of fair market value, approval and rejection of drilling permits and mining or production plans, and on-site inspection and enforcement of leases. The Bureau of Indian Affairs will assume such functions on Indian lands. The details of BLM's new minerals responsibilities will be clarified by June 1983.

7.5.4.1. Technical Investigations Program Concerning Coal Mining

The purpose of the BLM's Technical Investigations Program (formerly known as the Energy Minerals Rehabilitation Inventory and Analysis—EMRIA) is to collect information on surface and ground water in and near potential coal lease areas. The program is conducted in cooperation with the U.S. Geological Survey and the Montana Bureau of Mines and Geology. The information collected serves as a basis for: 1) assessing potential impacts on water supplies and identifying mitigation opportunities; 2) preparing site-specific stipulations; and 3) providing a baseline from which to monitor changes. Interpretive reports are the primary product of these investigations.

Individual technical investigations for Montana have resulted in final or draft reports on the following areas: Otter Creek, Bear Creek, Pumpkin Creek, Hanging Woman, Prairie Dog Creek, Cook Mountain, Fattig Study Area, Circle 1, Circle 2, Upper 13 Mile Creek, SW Glendive, and Burns Creek. These investigations either supply data and information directly for environmental impact statements, environmental assessments, tract delineation, tract ranking, lease stipulations, and post-mining land-use determinations, or are used in the EMRIA reclamation study area publications. These reports are available from the Montana State Office of the BLM in Billings.

7.5.4.2. Oil and Gas Leasing Activities

The Bureau of Land Management issues two types of leases for oil and gas exploration and development on lands owned or controlled by the federal government: competitive and noncompetitive. Competitive leases are issued for federal lands within the known geologic structure of a producing oil and gas field as determined by the Minerals Management Service. Such leases are issued to the qualified applicant who offers the highest bid.

Noncompetitive leases are issued through the Simultaneous Oil and Gas Leasing System. Lands that are not within any known geologic structure of a producing oil and gas field, commonly known as "wildcat" lands, are subject to leasing to the first qualified person making application for the lease. If more than one application is filed

for a land parcel, the lease is awarded through a lottery or random draw method of allocation.

In fiscal year 1981, BLM issued 45 oil and gas leases on approximately 7,800 acres in Montana and received $1.4 million in revenues through the competitive bidding process. With over 850,000 applications to the Simultaneous Oil and Gas Leasing System, a fourfold increase from 1980, BLM collected nearly $10.3 million in filing fees and granted 1,019 leases on 1.7 million acres of land. At the end of 1981, BLM had leased a total of 11.9 million acres in Montana for oil and gas exploration.

In December 1981, BLM released an environmental assessment of its petroleum leasing program for 21 western Montana counties, including the Overthrust Belt and the Rocky Mountain Front areas. BLM plans to implement extensive measures to mitigate the effects of oil and gas development on the 2.5 million acres it administers in western Montana. About 70 percent of the entire mineral acreage the BLM administers in this area, or 1.7 million acres, already is leased for oil and gas. The assessment acknowledges that an area with a high potential for natural gas production along the Rocky Mountain Front is also critical grizzly bear habitat.

7.5.5. Minerals Management Service

The Minerals Management Service (MMS) is a new agency created during the Department of the Interior's reorganization in January 1982. During 1982, MMS carried on the same functions formerly assigned to the Conservation Division of the U.S. Geological Survey. In yet another reorganization in December 1982, the Secretary of the Interior announced that the BLM would assume many of the onshore mineral leasing functions, except royalty collections, that had been transferred to the MMS. Most of MMS's activities, described below, will be taken over by BLM in 1983. (See also section 7.5.4.)

A major function of the MMS has been to prepare maps and reports describing national, regional, and local mineral reserves. In Montana, MMS evaluates leasable coal reserves, including the planning, funding, and supervision of cooperative coal-drilling programs with the Montana Bureau of Mines and Geology (see section 5.15.3.1.) and the U.S. Geological Survey (see section 7.5.2.). The objective is to provide the scientific data necessary for MMS to delineate and evaluate potential coal lease tracts in eastern Montana.

MMS identified and mapped federal coal lease tracts for the 1982 Northern Powder River lease sale (see section 11.4.), and is presently delineating tracts for the 1983 Fort Union lease sale. In the fall of 1982, MMS began delineating tracts for the 1984 Northern Powder River lease sale.

MMS has also mapped potential new coal development sites. This project will allow BLM to study areas with the highest potential for mining and will delineate areas for potential leasing in 1986.

Other leasable minerals evaluated by MMS include oil and gas, phosphate, sodium, and potassium. MMS also evaluates leasable geothermal resources. Oil and gas leasable mineral support consists of identifying and mapping Known Geologic Structures (KGS) which contain accumulations of oil or gas. KGSs are used by federal agencies when a federal tract is involved in competitive bid leasing.

In the spring of 1982, MMS began a joint exploration with the USGS and the Montana Bureau of Mines of central Montana's metal-bearing oil shale Heath Formation. The 2,700-square-mile formation has drawn the interest of several energy and mining firms. The Bureau of Mines, with funds from MMS and assistance from the USGS, began exploratory drilling in the summer of 1982 and will publish a report on its findings in 1983.

MMS has assisted the U.S. Forest Service, BLM, and other federal agencies by classifying mineral resources—including geothermal, coal, oil, and gas—on federal lands proposed for lease, sale, trade, or other transactions. MMS also was responsible for certain aspects of coal mine regulation that are described in relation to the federal Office of Surface Mining, Reclamation and Enforcement (see section 7.5.7.).

7.5.6. Bureau of Reclamation

In 1980 the Bureau of Reclamation's name was changed to the Water and Power Resources Service. In May 1981, the name was changed back to the U.S. Bureau of Reclamation (USBR).

The USBR operates three hydroelectric facilities in Montana: the Hungry Horse, Yellowtail, and Canyon Ferry dams. Canyon Ferry is the subject of a proposal, discussed in section 3.2.1.1., to add more generation capacity. In addition, the bureau is investigating the possibility of increasing power generation at Hungry Horse Dam (see section 3.2.1.3.).

The USBR administers Montana facilities out of two different offices. The Pacific Northwest Region office in Boise, Idaho, administers facilities in Montana west of the Continental Divide and, thus, is responsible for Hungry Horse Dam. The Upper Missouri Region office in Billings, Montana, administers projects east of the divide, including Canyon Ferry and Yellowtail dams.

With recent changes in federal policy, the State of Montana is now playing a larger role in USBR projects than in the past. Because of the current administration's federal-state cost-sharing program, the USBR can no longer initiate projects without permission and financial participation on the part of state and local entities.

DNRC currently is working with the USBR in investigating state-federal financing of projects to add

hydroelectric facilities to the federal agency's Yellowtail and Tiber dams.

In 1981 DNRC renewed its master contract with the USBR. This agreement, which allows Montana to administer subcontracts with potential industrial users of water from the Fort Peck Reservoir, limits subcontracts to 300,000 acre-feet annually. The USBR is responsible for marketing water from Fort Peck, which was constructed and is operated by the U.S. Army Corps of Engineers. Although formal plans for purchasing Fort Peck water for industrial use have not been presented, several firms are considering the area around Fort Peck as a possible site for gasification plants, power plants, and other coal/synfuel or chemical processes that would require large amounts of Fort Peck water.

Since 1979 the USBR has been conducting a programmatic study of its regional water-marketing plan and individual marketing contracts. A draft environmental impact statement for the plan, published in December 1982, emphasizes water use for coal development—including gasification, liquefaction, and electric generation. Coal fields under consideration include those of the Fort Union and the Powder River regions.

7.5.6.1. Northern Great Plains Wind Energy Study

In 1981 the USBR launched a study to assess wind energy potential in eastern Montana, North Dakota, South Dakota, and Wyoming. The USBR placed 16 wind gauges in these states—including five in Montana. Based on data gathered from these gauges, the USBR plans to select one site for a detailed analysis of its potential as a large-scale wind farm. Energy produced from wind turbines on such a farm could potentially be tied into the existing federal hydroelectric system. Bureau dams could serve as a backup to wind energy, generating hydroelectic power when the wind generators are not operating.

Because of redirection in funding, the USBR approached DNRC about entering into a joint wind-monitoring program. Through a cooperative agreement, DNRC assumed the program's station site selection and equipment maintenance tasks, with the USBR being responsible for data compilation. The USBR will publish a quarterly report based on data gathered by the state.

7.5.6.2. Low-Head Hydroelectric Evaluation and Inventory

In March 1982, the USBR released a report that listed 11 sites in Montana that may have potential for low-head hydroelectric generation. The report was part of USBR's *Low-Head Hydroelectric Evaluation and Inventory,* a study that began in 1979. Phase 1 of the project consisted of a study of potential additions to existing USBR facilities and included plans for accelerated development at some of those sites. Phase II was an inventory of low-head hydroelectric resources in 17 western states. From this inventory, the USBR identified a limited number of sites which showed potential for development. These sites then were studied as part of Phase III. The Phase III report includes the installed capacity, average annual energy production, total cost, and benefit-cost ratio for each economically feasible site and, in addition, the environmental and social impact ratings.

The Montana sites identified in the Phase III report included the following: Lower Thompson Falls on the Clark Fork; Tepee (near Troy) on the Kootenai River; Lombard on the Missouri River; Sentinel (near Wolf Creek) on the Missouri River; Little Porcupine (near Frazer) on the Missouri River; Ulm (near Great Falls) on the Missouri River; Alberton on the Clark Fork; Weeksville (near Plains) on the Clark Fork; Seven Mile Rapids (near St. Regis) on the Clark Fork; Cold Creek (near Red Hill) on the Clark Fork; and Superior on the Clark Fork.

7.5.7. Office of Surface Mining, Reclamation and Enforcement

The Office of Surface Mining, Reclamation and Enforcement (OSM) was created within the Department of the Interior by the 1977 Surface Mining Control and Reclamation Act (see section 7.5.7.1.).

OSM is organized into three assistant directorates under the leadership of a director and deputy director. The assistant director for Program Operations and Inspection is responsible for assisting states and Indian tribes in developing surface mining regulatory programs, mine inspection and enforcement, grants-in-aid, and fee compliance. The assistant director for Technical Standards and Research is responsible for mining and reclamation plans on federal and Indian lands, compliance with the National Environmental Policy Act for federal actions on these lands, petitions for designating lands unsuitable for mining, federal coal program assistance, experiments with mining practices, and other technical components of the Surface Mining Act. The third directorate has management and budget responsibilities.

The Program Operations and Inspection directorate maintains offices in several states to carry out its responsibilities. Montana falls under the jurisdiction of the Casper, Wyoming, office. This office is directly responsible for coal mining operations in Montana and other states of the northern Rocky Mountains and Great Plains. The Casper office provides inspection oversight, grants-in-aid, and grants for reclamation of abandoned mined land.

The Technical Standards and Research directorate employs a technical center staff to carry out its responsibilities. Montana falls under the jurisdiction of the Denver Technical Center, which provides technical expertise, assistance to small operators, reclamation projects on abandoned mined land, and oversight of the premining review process for all states west of the Mississippi. The Denver office coordinates its efforts with those of the State of Montana, primarily the Department of State Lands, on

mining permit reviews, technical assessments, and environmental impact statements.

OSM shares its responsibility for overseeing mining activities on federal lands with the federal Minerals Management Service (MMS—see section 7.5.5.), the Bureau of Land Management (BLM—see section 7.5.4.), and the U.S. Forest Service (USFS—see section 7.1.1.), as well as those states with federal lands within their boundaries that have gained regulatory primacy for coal mining operations and have signed cooperative agreements with the Department of the Interior.

MMS has jurisdiction over mineral exploration on federal lands outside mine permit areas, as well as responsibility for resource conservation, diligence, and royalties under the Mineral Leasing Act. (MMS was reorganized in December 1982 and a number of these functions may be transferred to BLM.) BLM is the lead agency for federal minerals management and, under a variety of federal statutes, is responsible for management and protection of surface resources on federal lands. BLM can set post-mining land use performance bond limits to assure protection of these resources. The USFS performs a similar role for all national forests. OSM is responsible for implementing the programs of the Surface Mining Act. This entails evaluating and regulating mining plans and operations, including environmental performance standards, land reclamation, and mine abandonment procedures. OSM, together with the MMS, BLM, and the USFS, submits recommendations to the Secretary of the Interior concerning approval or disapproval of mine plan applications.

Although OSM is the federal agency responsible for regulating mining operations and land reclamation, a central provision of the Surface Mining Act is that the states shall have primary authority in these areas. Since Montana's permanent program for regulation of coal mining and reclamation was approved by OSM in April 1980, OSM now operates purely in an oversight capacity regarding the state's program. When federal coal is involved in a proposed mine within Montana, however, the Secretary of the Interior must approve the mining plan.

The OSM regulatory program is undergoing substantial changes. The Secretary of the Interior has ordered major organizational and staff revisions, and budgetary cuts for fiscal year 1982 decreased OSM's funds for oversight inspections of mines.

In the first half of 1982, the Secretary of the Interior rewrote approximately 60 percent of OSM's regulations. The proposed new rules were issued in January 1983; the final rules are scheduled to be released in early 1983. Conservation groups have challenged some of the proposed new regulations, and litigation is expected when the final rules are issued. When the final revisions are approved, states may revise their regulatory programs accordingly, if they choose to do so.

As part of the settlement of a lawsuit brought against the Department of the Interior by the National Wildlife Federation, OSM prepared a draft environmental impact statement (EIS) on the cumulative impacts of the proposed regulatory revisions. The draft EIS, issued in June 1982, found that the revisions would have significant impacts on wildlife, land use, cultural resources, aesthetics and, possibly, hydrology. These impacts would be incurred mainly by revisions proposed for subchapter F (areas unsuitable for mining) of the Surface Mining Act. Impacts also would come from revisions to subchapters G (permits) and K (performance standards). In addition, conservation groups are concerned that changes in the definition of "valid existing rights" would allow more exceptions to strict prohibitions of the act and would result in mining in national parks. The National Park Service has testified that, under the proposal, 1.7 million privately owned acres within national parks could be opened for surface mining of coal and that all 26 parks in the national system could be affected. The proposed rule change could also open some 1.2 million acres in national forests and national wildlife refuges to surface coal mining.

In general, the proposed revisions are expected to result in a significant decrease in the extent of current regulations and an increase in reliance on state enforcement programs. The National Wildlife Federation alleged in a separate court action that OSM's draft EIS was inadequate. A final EIS was issued in January 1983 at the same time the proposed revisions were released.

7.5.7.1. Surface Mining Control and Reclamation Act of 1977

In passing this legislation, Congress declared that coal mining operations contribute significantly to the nation's energy requirements, but that many mining operations disturb surface areas in ways that adversely affect commerce and the public welfare. Since surface mining and reclamation technology is available, effective and reasonable regulation is an appropriate and necessary way to minimize the adverse social, economic, and environmental effects of mining. Because coal mining areas are so diverse, Congress assigned primary regulatory responsibility to the states.

The act, administered by the Office of Surface Mining (OSM—see section 7.5.7.), allows states to impose stricter surface mining standards than the federal standards. Montana is generally ranked with Wyoming as having the most stringent standards in the nation. (Requirements of the state program are discussed in section 5.8.1.)

Coal mine operators producing 250 tons or more of coal from any one location in 12 consecutive months are subject to the act. Operators are required to:

— restore land to its original or a better condition;
— restore the approximate original contour;
— remove and preserve the topsoil for later redistribution;
— minimize disturbance to the hydraulic balance;
— design, maintain, and remove all existing and new

waste piles used as dams or embankments;

— use explosives in accordance with state and federal regulations;

— establish a permanent vegetative cover on affected areas;

— on slopes greater than 20 degrees, prevent placement of spoil on downslopes, cover the highwall, and return the site to its original contour.

The permanent regulatory program requires operators to:

— maximize use of the coal resource;

— restore the topsoil;

— preserve the individual soil horizons from prime farm land;

— stabilize all areas to control erosion and pollution;

— construct permanent water impoundments to preserve water quality and quantity for adjacent users;

— treat all acid-forming or toxic materials to prevent water contamination;

— conduct reclamation activities as soon after mining as practical;

— assume responsibility for successful revegetation for 10 years in regions with less than 26 inches of average annual precipitation; and

— stabilize all waste piles and excess spoil.

This is only a partial listing of the items and practices mentioned specifically in the act. In addition, operators must post a performance bond equivalent to the cost of having a third party reclaim the site if the operator does not do so.

States with approved programs are responsible for enforcement, although federal inspections are still required to evaluate program performance. The legislation required that all requirements of the act be applied to federal lands, except for Indian lands, within one year after they were enacted. States such as Montana, with existing agreements to regulate surface coal mining on federal lands, have been allowed to continue those agreements; however, the Secretary of the Interior may not delegate his duty to approve mining plans and designate federal lands unsuitable for mining.

Any person adversely affected by a surface mining permit application may file an objection and may request an informal conference in the locality of the proposed mine site. Persons suffering personal injury or property damage may sue the mine operator for damages. Objections also may be filed regarding release of a performance bond.

Federal coal under private land may not be leased until the surface owner has given consent to enter the land and commence surface mining operations.

The act establishes a procedure for designating lands as unsuitable for coal mining. The Secretary of the Interior determines the unsuitability of federal lands, while states have such authority over nonfederal lands. Areas may be designated unsuitable if, upon petition, it is determined that reclamation of disturbed lands is not economically or technologically feasible. Areas also may be designated unsuitable if mining operations will:

— be incompatible with existing land-use plans;

— significantly affect important fragile or historic lands;

— result in substantial loss or reduction in productivity of agricultural lands; or

— substantially endanger life and property in natural hazard lands.

Surface mining operations not in existence on the date of enactment are prohibited in national parks, wildernesses, and other specially managed areas or on federal lands in national forests, except under certain conditions.

The act allocated funds to the Secretary of the Interior for research and demonstration projects on mining and mineral resource concerns, including a program to be run through state Mining and Mineral Resources and Research Institutes (MMRRI). The Montana College of Mineral Science and Technology in Butte was granted MMRRI status in September 1978.

In July 1982, the administration set April 3, 1983, as the cutoff date by which coal companies must start meeting stringent requirements to ensure that the prime farmland they mine is returned to its original productivity. However, litigation brought by several representatives of the mining industry—including the American Mining Congress and Peabody Coal Company—resulted in a September 1982 U.S. District Court ruling that invalidated the setting of a cutoff date.

LOCAL GOVERNMENT AND ENERGY

Due to the escalating cost of energy, local governments in Montana have become increasingly involved in energy planning and management as a fiscal management tool. DNRC, through the federally funded Energy Extension Service (EES) program, has been working with local governments since mid-1980, encouraging and assisting local energy conservation efforts through a variety of projects.

The major focus of the EES program for local governments has been a series of grants to cities. These grants are designed to allow them to develop energy conservation programs specifically suited to their own needs. The communities detailed below are carrying out the major, on-going community energy management activities in the state. All but one of these communities have received EES funds to cover at least part of the costs of their activities. Although several state agencies work through local governments to administer a variety of energy programs targeted to specific groups, DNRC is the only state agency working directly with local governments on municipal and community energy planning.

8.1. ANACONDA-DEER LODGE COUNTY

The cost and consumption of energy in Anaconda and Deer Lodge County has received very little attention in the past. However, with the increased cost of energy consuming large portions of governmental and residential budgets, community residents and government officials realized that steps needed to be taken to solve this problem.

In July 1982, Anaconda-Deer Lodge County received a grant from DNRC for developing a community energy management plan. This plan will provide a guide for the local government and the community residents to cut energy consumption and, thereby, reduce energy costs. The plan was completed in January 1983.

The urgency for implementing such a plan is exemplified by the staggering costs of energy in Anaconda and Deer Lodge County. In 1981 the cost for electricity and natural gas for Anaconda-Deer Lodge County government facilities was $75,000; the projected cost for 1990 is $236,000. If steps outlined in the energy management plan—for the facilities only—are undertaken, accumulated efficiency savings could amount to $495,000 by 1990.

8.2. CITY OF BILLINGS

The City of Billings has addressed energy use management and renewable energy sources on two fronts. The first and primary focus has been within city government operations. The second focus has been in community activities.

A special assistant to the city administrator acted as energy coordinator for the City of Billings in 1981-82. The coordinator assisted in collecting energy data, forecasting energy use trends, and monitoring conservation and renewable energy efforts both within city operations and in the community as a whole. Billings' conservation efforts have been guided by a city energy committee with membership drawn from department heads. Partial funding for the city's energy management planning activities has come from a grant from DNRC's Energy Extension Service.

City Operations. A major effort has been to accumulate energy consumption data on all aspects of city government operations as a basis for the city's budget and resource allocation process. Pumps, irrigation systems, and vehicles were monitored. Energy audits and detailed technical analyses also were conducted on city buildings. Energy profiles have been completed for most of the energy-consuming operations within city government.

Fleet fuel consumption, which has been tracked regular-

ly during the past three years, has shown a steady decline in overall use as a result of using smaller vehicles, conversion to propane fuels, and upgrading fleet fuel-efficiency standards. In the police department, conscious efforts to reduce idling time by changing the means of surveillance and traffic monitoring is expected to substantially reduce police vehicle fuel needs. Residential garbage pickup service was reduced from twice a week to once a week, reducing fuel consumption by more than 30 percent.

All new street lighting installations are required to incorporate energy-efficient high-pressure sodium street lamps. The city's advertising sign ordinance specifies the total amount of energy that these signs are allowed to consume. Billings is considering a $5.5 million modification to its wastewater treatment plant so that methane could be produced at the plant and burned there in place of natural gas.

The City of Billings and the City-County Planning Department sponsored a Planned Unit Development Workshop designed to show the potential benefits of planned unit developments for the orderly and efficient growth of the community. The city's planned unit development ordinance is being revised with energy efficiency as a design consideration for developments under review.

The City-County Planning Department also has compiled information on district heating systems and the potential for implementing such a system in Billings.

Other recent energy conservation efforts in Billings have included:

— implementation of modified life-cycle cost purchasing procedures;

— a $400,000 retrofit, including passive solar heat, on the central maintenance facility;

— assistance in carpool organization;

— approval of an optional four-day, 10 hours each day work schedule;

— acceptance of flex time to fit bus schedules;

— initiation of a solid waste recovery study.

The continued development of energy-related programs within city operations is considered to be an important element of Billings' overall energy management plan.

Community Activities. The City of Billings has assisted in establishing a multimedia energy information center at the Parmly Billings Library that features books, films, and free pamphlets on energy conservation and renewable energy.

The city also has actively supported and encouraged the Billings Community Energy Program (BiCEP), started in 1979 to promote energy conservation and the use of energy alternatives. In May 1981, the city, along with other citizen and business groups, cooperated with BiCEP in organizing the Billings Energy Futures Conference. This conference brought together community leaders to discuss how energy issues can be dealt with at the local level. The conference report, *Energize: Community Energy Projects for Today,* was published in November 1981. BiCEP also has sponsored solar home tours and seminars on energy conservation for home builders, realtors, appraisers, and home loan institution officials, as well as the public. BiCEP played a major role in helping to complete a March 1981 study, *Present and Future Use of Energy in Yellowstone County.*

8.3. CITY OF BOZEMAN

In order to establish energy conservation as a priority and a policy, the Bozeman City Commission passed a resolution to that effect in 1980. A grant proposal funded by the DNRC Energy Extension Service in 1981 allowed the city to hire an energy planner who developed an internal energy plan for the city and an energy element for the new city planning area master plan.

City Buildings. City buildings were audited and technical studies performed on the city hall, a fire station, and the Bozeman Swim Center—the three most important city structures in terms of energy consumption and the potential for energy conservation. The results of the studies indicated that $143,000 worth of energy retrofits were needed to make those structures more energy efficient. Since local governments are strapped for revenue and, thus, find it hard to allocate funds for energy conservation measures, the city used a method tried by other local governments and set aside $37,635 from its 1982 budget to begin financing retrofit projects. This money had been budgeted to pay utility bills but was unspent at the end of the fiscal year. Major retrofits on the city hall and the fire station have been completed.

The Bozeman Swim Center was constructed in 1973 when utility bills were not as high as they are now. The pool's utility bills, the largest for all city facilities, annually consumed roughly one-third of the swimming pool budget. A crisis in funding was reached when the fiscal 1983 budget was prepared and the city considered closing the pool. Pool supporters rallied to the cause and volunteered to pay for a pool blanket, an essential ingredient in any swimming pool energy conservation program. The city then added approximately $50,000 to the budget to complete the other essential energy conservation projects at the swim center.

Master Plan. Adoption of the new Bozeman Master Plan is anticipated in early 1983. The energy element will provide guidance in appropriate ways to use and conserve energy. Once adopted, the plan will establish an ongoing oversight and review of land-use planning in relation to

energy conservation. With time, this emphasis will begin to be felt as people become more familiar with the master plan.

Other Activities. Bozeman churches were surveyed by the city energy planner about budgetary problems related to increasing energy costs and plans for retrofitting. The city energy planner also published monthly energy columns in a local newspaper, concentrating on the need for energy conservation in homes and businesses.

Increased heating bills have made wood-burning stoves attractive to many Bozeman residents. In 1980 about 4,000 wood-based heating systems were in use in the area. As a result, air quality has deteriorated. A study was initiated in December 1981 to monitor air quality. This study will provide a data base from which conclusions about air pollution caused by the increased use of these systems can be drawn.

Energy information is available free of charge at the Bozeman Public Library. In addition, several booths at the annual Montana Winter Fair feature energy information. Montana State University students and faculty members conducted an Energy Fair in May 1981.

8.4. BUTTE-SILVER BOW COMMUNITY ENERGY MANAGEMENT PROGRAM

The Butte-Silver Bow government, with assistance from the National Center for Appropriate Technology (NCAT) in Butte, initiated the Butte-Silver Bow Community Energy Management Program in 1980. Program goals are to project future energy demands and assess the energy sources, conversion technologies, and legislative policies that most adequately and economically meet the projected demands.

The Butte-Silver Bow Council of Commissioners unanimously passed a resolution "establishing and approving a comprehensive energy policy for the communities of Butte-Silver Bow." The resolution commits Butte-Silver Bow to an energy efficient future and is the basis for energy policy development. An advisory committee made up of Butte residents, and a technical advisory committee composed of NCAT personnel, were formed. Butte-Silver Bow has had a full-time energy coordinator since 1981. The Butte-Silver Bow Energy Office received a grant from the DNRC Energy Extension Service to help develop its energy management program.

Data collection for residential, commercial, industrial, transportation, governmental, institutional, and nonprofit sectors (churches) began at an early stage. Energy audits have been conducted on government and other public buildings, including the Montana College of Mineral Science and Technology, and energy conservation measures have been instituted in several government buildings. A report concerning the energy consumption of the Butte-Silver Bow government, with an energy efficiency plan for all Butte-Silver Bow government facilities and operations, was completed in September 1982.

The Butte-Silver Bow energy management program includes outreach activities to raise public awareness of energy issues, work with the local Human Resources Development Council to identify the energy-related problems of low-income people, and an effort to work with business and commercial interests.

Other activities of the Butte-Silver Bow Energy Office have included:

— organizing Butte-Silver Bow Energy Week in March 1981;

— preparing and distributing the brochure,"A Plan to Save Energy Dollars in Butte-Silver Bow";

— assisting the public library in promoting energy conservation and renewable energy by purchasing many energy books and setting up displays;

— conducting several community energy surveys to analyze residents' levels of awareness and interest in energy problems and solutions;

— continuing to analyze consumption and costs of energy and impacts of conservation in Butte-Silver Bow's major facilities;

— coordinating energy audits on all Butte schools, and assisting in establishing an energy task force for schools; and

— working with the Community Development Department to coordinate the energy conservation aspects of a $1.7 million federal grant to fund a number of solar-heating systems in a central Butte neighborhood.

Implementing energy management techniques and low-cost/no-cost energy conservation measures has significantly cut the Butte-Silver Bow government's operating expenses. The estimated savings since 1979 in government buildings alone has been $47,654. Among the conservation measures currently being investigated by the Butte-Silver Bow government are:

— a complete energy management computer system for controlling energy consumption in all buildings and facilities;

— promoting the Butte-Silver Bow transit system;

— a solar hot water heating system for the Stodden Park Pool;

— a waste-to-energy park;

— installation of high-pressure sodium lamps for street lighting; and

— conversion of government vehicles to propane or compressed natural gas.

8.5. CITY OF GREAT FALLS

The City of Great Falls initiated its energy conservation program in 1978 by forming the City Energy Conservation Planning Committee to study and formulate city goals and objectives. In March 1978, the committee compiled and published an Energy Conservation Plan adopted by the city commission.

The plan contains three basic elements involving capital improvements, operational adjustments, and employee participation. The capital improvement plan calls for low-cost, quickly implemented improvements to be made within the confines of existing budgets. The operational adjustments procedures outline the energy conservation practices available for operating municipal buildings and equipment. Employee participation involves creating employee awareness of the necessity for energy conservation in all daily functions.

The city is promoting its general, long-range conservation programs by investigating and updating permitted city growth objectives. This includes modifying zoning ordinances to permit the construction of planned unit developments and townhouses with common wall construction and common open spaces. Passive solar design and earth-sheltered construction also are being promoted, and public buildings are being retrofitted through a long-range capital improvement program to make them more energy efficient.

The emphasis on increased energy conservation and efficiency also is reflected in the transportation element of the city's energy conservation plan. To date, the city has instituted a new bus system and has established a number of bikeways. The city also is promoting the use of smaller, energy-efficient automobiles and vehicles that use natural gas, rather than gasoline, as fuel.

The city has initiated capital investment projects for energy conservation and is monitoring the savings and cost payback potentials for many municipal buildings and facilities. These include the Great Falls civic center, the city water treatment plant, the city pool, the police headquarters, city fire stations, the sanitary sewer system, the city water system, and several buildings operated by the Great Falls Housing Authority.

The operational adjustments include adjusting thermostats to temperatures at which the buildings' occupants can still remain comfortable and lowering the temperatures in buildings when they are not occupied. Storage areas are maintained at temperatures only high enough to prevent freezing. Water heater thermostats are set at a temperature just warm enough to provide useful hot water. Furnace elements are cleaned and adjusted on a scheduled basis to ensure that the furnaces will generate at their designed efficiencies. All janitorial and other service duties are performed during daylight hours when practical.

Employee participation activities include driver training sessions and staff meetings to develop an increased energy conservation awareness. Among the items stressed are turning off lights, fans, and air conditioners when rooms are not occupied, the savings that can result from reducing room temperatures, and the elimination of energy wasting items and activities.

8.6. CITY OF HELENA

In 1977 the Helena City Commission passed a resolution making energy conservation an official city policy and establishing the Energy Advisory Board to make recommendations on a community energy program. The city manager made the city budget director responsible for energy matters.

The Energy Advisory Board was aided in its early years by the Energy Task Force, which helped establish the Energy Information Resource Center (see following section) at the Lewis and Clark Library. The task force also conducted a series of workshops and seminars, and worked with the Helena Realtors' Association to develop an energy checklist for home buyers.

In 1979 the city received a report it had commissioned entitled *Report to the Helena City Commission on Problems and Opportunities Posed by the Relationship of Energy to City Planning*. The report included an estimate of communitywide energy use in the Helena area. In 1980 the Budget and Evaluation Office completed an exhaustive report on energy use by the City of Helena.

In 1981 Helena received a DNRC Energy Extension Service grant for energy management planning and implementation. The first major projects included energy audits of the city's buildings and an analysis of its vehicle fleet. In both cases the absence of preventative maintenance appeared to be the major cause of energy inefficiency. The city's building and vehicle maintenance programs were improved. The preventative maintenance program has not only aided the city in getting better performance from its vehicles, but also has eliminated the need for backup vehicles in many areas.

The annual energy report is a vital part of Helena's energy program. Prepared by the city's budget staff, the report provides detailed information on the city's energy consumption, its related costs, and projections for future energy use and expenditures.

In order to fund conservation projects in the future, the city has established an energy reserve fund in its fiscal year 1983 budget. The city budgets for gasoline above its expected cost; the difference between the budgeted and actual costs goes into the energy reserve fund and is spent on conservation improvements.

In November 1981, Helena converted a city bus to a dual-fuel propane system. By March 1982, the city had converted five more vehicles—two buses and three trucks—to similar systems. The payback for conversion of the three buses was less than seven months. The conversion of police patrol vehicles to run on propane is also being analyzed. Trombe walls will be used to help heat and light two buildings at the city's water treatment plant. Also, plans are underway to install anaerobic digesters at Helena's wastewater treatment plant. The digesters would produce methane gas from the wastes. It is hoped that the gas could be used to supply some of the power needed to operate the plant.

Lewis and Clark Areawide Planning Organization. In February 1981, the Helena City Commission adopted the energy element of the City of Helena Comprehensive Plan and the Lewis and Clark County Commission adopted the Energy Policy for Lewis and Clark County. These documents were prepared by a consultant hired by the Areawide Planning Organization (APO) and funded through a grant from the U.S. Department of Energy.

During 1981, the APO worked with the planning board to revise Helena's Comprehensive Plan. Energy-efficient land use is a key element of Helena's Comprehensive Plan, which was adopted in October 1981.

In December 1981, the APO received a grant through the DNRC Energy Extension Service to perform the following tasks:

— establish a system for monitoring community use of natural gas, electricity, fuel oil, coal, wood, solar energy, and gasoline;

— pursue efforts in the Helena community to increase public awareness of energy consumption and conservation trends;

— revise the Helena Zoning Ordinance to allow for more energy-efficient land and building uses.

In 1982 the APO assembled statistics on energy use and presented this information at a number of public meetings. A tabloid on energy use in Helena was prepared for publication in the local newspaper. The APO cooperated with the City of Helena and the Lewis and Clark Public Library in these public awareness efforts.

The APO also has worked with the Helena Zoning Commission to propose a number of substantial revisions to the City Zoning Ordinance. The proposed energy-related revisions include: reducing required minimum lot sizes; eliminating minimum building square footage requirements; providing for increased residential densities; reducing building setback requirements; allowing additional neighborhood commercial uses in certain residential zones; and increasing the percentage of spaces for compact cars in required parking areas.

The APO is working with the City-County Planning Board to complete a County Comprehensive Plan. The County Energy Policy will be incorporated into this plan.

8.7. LEWIS AND CLARK PUBLIC LIBRARY

The Technical Reference Center at the Lewis and Clark Public Library has operated since 1980 under a series of grants, primarily funded through the DNRC Energy Extension Service Program. The center serves as a focal point for the dissemination of energy conservation and renewable resources information to 100 public libraries statewide. The purpose of this program has been to improve the ability of local libraries to meet the energy information needs of their patrons while coordinating with state, federal, nonprofit, and private organizations active in the energy information field. The program is also designed to avoid duplication of efforts.

Recent activities of the Technical Reference Center include:

— a statewide energy information collection program that placed books and materials costing nearly $20,000 in Montana libraries in 1981. The success of Montana's program led to a regionwide effort that resulted in the purchase of about $3,500 worth of energy books and periodicals in each of the 45 largest public libraries in six Rocky Mountain states;

— conducting training workshops for librarians, builders, planners, and developers;

— distributing packets containing energy news, bibliographies, book reviews, and a calendar of energy events to public libraries across the state every month.

The Technical Reference Center serves as a backup to other public libraries in Montana and maintains a collection of energy-related books and materials, including energy-efficient housing plans. It also provides means for referring state, federal, and other energy-related information to the public library sector to improve public accessibility.

8.8. CITY OF MILES CITY

The City of Miles City recently initiated its energy conservation program. In September 1982, Miles City began an energy study, financed by a grant from DNRC. The study marks the beginning of energy use monitoring by the city and signifies the beginning of an aggressive posture by the city government to conserve energy.

The benefits of the study have been realized by persons other than city department heads and local government officials. Through the involvement of a Citizen's Task Force, comprised of business persons, contractors, service club members, and private citizens, community awareness has been increased.

Community awareness was further demonstrated by the November 1982 passage of a $2 million city bond issue, the major portion of which deals with implementing energy conservation measures and retrofitting the local public high school facilities to conserve energy.

These are only the first moves toward energy conservation in Miles City. The energy study recommendations will involve many no-cost/low-cost conservation proposals. The data base, compiled by the study, indicates that some areas of energy consumption will require more detailed study in the future.

8.9. MISSOULA VALLEY ENERGY CONSERVATION BOARD

In late 1979, the City of Missoula proposed the formation of the Missoula Valley Energy Conservation Board to further energy conservation in the valley and to assist in coordinating these efforts. An agreement was signed in May 1980 that formed a coalition among representatives of the city, county, schools, and the District XI Human Resources Development Council. The first meetings of this coalition were held in the fall of that year. Members of the board include representatives of the above mentioned groups, as well as Champion International and the Montana Power Company, with ex-officio members from the public.

An initial accomplishment of the board was to sponsor a conference entitled "Missoula's Energy Future," which served to focus the board's attention on important energy issues in the area. Recommendations from the conference included a study of increased community recycling and generation of power from municipal wastes, promotion of alternative modes of transportation, and a study to examine the feasibility of a centralized (district) heating system for the downtown area.

An energy coordinator was hired by the board in January 1982 to complete energy audits of city and county buildings and to create an energy data base to assist in the analysis of local government energy policies. The position is jointly funded by the city and the county, and the coordinator works out of the county commissioner's office. A strong focus of the board has been to determine the cost-effectiveness of the energy policies recommended by the energy coordinator's office. Computer models have been designed to project future life-cycle costs of proposed energy conservation measures, and of operations and maintenance alterations. Long- and short-term creative financing options are being studied as part of a University of Montana student's master's thesis.

The board also is exploring a number of opportunities to conserve energy, including work with building code standards and a revision of vehicle specifications. The board received funding from DNRC's Energy Extension Service in 1982 to prepare an energy element for the county's comprehensive plan.

In June 1981, the board published a study entitled *Energy Use in Missoula* that included recommendations on the development of a comprehensive energy management program for the city and county. The study was prepared for the board by the Alternative Energy Resources Organization (see section 9.1.).

In October 1982, the board cosponsored a workshop for Missoula community leaders to develop a strategy for achieving local energy conservation priorities. Topics discussed at the workshop were: building codes; the energy element of the county comprehensive plan; financial incentives for energy conservation; and retrofitting buildings.

8.10. RICHLAND COUNTY

In recent years the Sidney-Richland County area has been a focal point for natural gas and oil exploration and development. Petroleum-related activities in the region brought many people into the area—the population increased from about 9,000 in 1978 to 14,000 in 1982. This rapid population growth has changed land use and traffic patterns, and increased the need for city and county planning.

In 1982 the Richland County Planning Board decided to update the county comprehensive plan. DNRC provided them with a grant to include an energy element in the plan.

The energy element will focus on encouraging land development patterns that promote energy efficiency in the residential, agricultural, commercial, industrial, and transportation sectors. The first step was to develop a comprehensive energy use data base or profile. The profile delineates use patterns for natural gas, gasoline, diesel fuel, electricity, propane, coal, and renewable energy sources in Richland County.

The energy element will assess the economic impacts imposed on the community by rising energy costs and propose policy alternatives to promote the wise use of energy. The board hopes to have conducted public hearings and completed final adoption of the comprehensive plan, including the energy element, by the summer of 1983.

8.11. MONTANA ASSOCIATION OF COUNTIES

The Montana Association of Counties (MACo) is a private, nonprofit association that represents Montana's counties from its headquarters in Helena. Units of county government in Montana are actively assessing current energy uses in order to reduce the impact of energy costs on county budgets. MACo is helping county officials establish guidelines for energy conservation in their communities, suggesting managerial techniques to reduce energy consumption, providing training materials that demonstrate the advantages of energy conservation, and initiating energy audits of existing buildings. MACo is also cooperating with DNRC's Energy Extension Service to develop improved mechanisms for working with counties on energy conservation improvements.

At its 1982 meeting, MACo adopted a number of policy statements on energy use and natural resource development. MACo urged county officials to establish guidelines for conserving energy within their jurisdictions and asked state and federal governments to create incentives for further development of new energy sources and alternate uses of existing sources. State and federal agencies also were encouraged to address the needs of counties affected by coal, oil, and natural gas development, timber production, and mineral resources and hydroelectric development, and to provide financial assistance so that counties can provide the services and facilities needed to handle increased natural resource development.

8.12. MONTANA LEAGUE OF CITIES AND TOWNS

Since energy costs are a major part of any municipal budget, energy management workshops have been included in the program at recent annual conventions of the Montana League of Cities and Towns. Cosponsored by DNRC's Energy Division, the 1982 workshop stressed energy management for municipal buildings and vehicle fleets, as well as planning and financing energy conservation equipment and measures.

In 1980 the league held an "Energy and Your Town" workshop that enabled local officials to examine energy management planning at the community level. The league sponsored the workshop because it realized that addressing local responsibilities, such as land use, transportation, building code enforcement, public housing, urban development, and libraries through programs and policies that foster energy conservation and the use of renewable energy sources, can contribute to a healthy local economy.

Past league activities have included workshops that featured energy audits of large businesses and distribution of training materials to help implement locally designed and operated energy conservation plans.

UTILITIES AND PRIVATE SECTOR ENERGY-RELATED ORGANIZATIONS

9.1. ALTERNATIVE ENERGY RESOURCES ORGANIZATION

The Alternative Energy Resources Organization (AERO) is a nonprofit public interest group formed in 1974 and based in Billings, Montana. Its education office—the New Western Energy Show (see following section)—is in Helena. AERO has two associated groups: the Pondera Solar Alliance in Conrad, and People for Alternative and Renewable Energies in Great Falls.

AERO's objectives are:

— to provide necessary information and teach skills basic to renewable energy, energy conservation, and human-scale technology;

— to develop renewable energy information for use in public education systems; to influence the energy policy of governing bodies; to organize and sustain local energy groups;

— to identify and develop technical expertise and to link that expertise with people who need it; and

— to examine the political, economic, and social implications of a transition to a renewable energy future.

AERO promotes renewable energy development through four methods: 1) research; 2) public education—workshops, seminars, tours, conferences, school programs, the traveling New Western Energy Show, and consulting on design and technology, solar law, and state and national policy; 3) outreach—community education and organizing, publications, including a monthly magazine, *The AERO Sun-Times,* energy activity books for children, fact sheets; and 4) citizen representation—AERO sponsored lobbyists for renewable energy in the 1981 and 1983 Montana Legislatures.

During the years 1979 through 1981, AERO conducted two statewide outreach programs. The Local Energy Organizers (LEO) project was staffed by eight CETA workers, who carried out energy education activities in seven Montana towns: Miles City, Roundup, Billings, Bozeman, Hamilton, Helena, and Havre. This program was initiated in February 1979 to catalyze citizens' and local government efforts in Montana to analyze present energy use, become educated about energy conservation and renewable energy alternatives, and begin the transition from fossil fuels to these alternatives. The LEO project generated a number of activities and programs across the state, including a weekly radio program on renewable energy, classes on renewable energy at local schools and colleges, design and implementation of conservation retrofits on low-income homes, workshops on solar window boxes and solar greenhouses, and work with local community action programs to finance the building of solar food dryers.

The CAMEO (County Assessment of Montana Energy Options) program placed eight VISTA volunteers in seven Montana counties where they acted as initial organizers of many local energy activities. Goals of this one-year program, which began in 1980, were to:

— assess each county's present energy use by sector and type of energy;

— determine the county's energy conservation and renewable energy options, including their economic and employment-related implications; and

— undertake local action projects aimed at alleviating energy supply and distribution problems in the county.

CAMEO organizers helped sponsor "Energy Futures" conferences in Missoula and Billings, started local energy groups, brought energy education into public schools, and worked with public officials and private citizens. As part of its CAMEO program, AERO sponsored 31 hands-on solar workshops in the summer of 1981.

Other recent AERO projects include:

— cosponsoring the Alternative Energy Exposition and Show in Ravalli County, May 1981;

— sponsoring the Northern Great Plains Wind Conference in Billings, October 1981;

— co-sponsoring a Methane Biogas Conference in Flathead County, March 1982;

— preparing the *Montana Renewable Energy Directory,* September 1982, with information about the renewable energy products and services now available; and

— many renewable energy workshops and presentations.

In 1982 AERO formed a solar training group that will develop a statewide network of leaders to direct solar presentations and workshops. This project also will provide in-service training for elementary and secondary school teachers and administrators, as well as technical seminars for builders, contractors, and solar equipment installers.

AERO maintains an extensive library and resource center in Billings that is open to the public.

In 1983 AERO plans to become much more active in

energy policy development and advocacy and to strengthen its services in technical assistance.

9.1.1. New Western Energy Show

The New Western Energy Show was formed by the Alternative Energy Resources Organization in 1976 as a means of disseminating information about renewable energy and energy conservation. The show began as a touring group that combined renewable energy displays, panels, a portable library, and a theater troupe that performed original musical theater material on the theme of renewable energy and energy conservation. The DNRC Renewable Energy Program funded the show's 1976 and 1977 summer tours. An additional grant in 1978 helped support a renewable energy resource center which allowed the show to expand from a summer to a year-round operation.

Recently the show has focused on work with schools, as well as workshops and technical information for the general public. The show has four ways of aiding teachers in incorporating renewable energy education into their classrooms, including:

— "Get Your Hands on Energy," a 100-page booklet with activities on recycling, renewable energy, and energy conservation;

— the workshop truck, which carries two education specialists, a puppet theatre, and materials for classroom energy activities to schools throughout Montana;

— the Energy Box, four kits featuring energy-related models, materials, manuals, and lesson plans geared for different grade levels (funded in part by DNRC); and

— a series of teacher training workshops to assist teachers in maintaining solar energy and conservation as a regular part of their curricula.

9.2. MONTANA COAL COUNCIL

The Montana Coal Council is a trade association that represents producing coal companies, coal reserve holders, and businesses associated with the coal industry in Montana. The council was established in 1972 to research and present information on the potential for Montana coal to alleviate the country's dependence on foreign oil.

In recent years, the Montana Coal Council has worked at both the state and federal level on legislation affecting the surface mining of coal. During sessions of the Montana Legislature, the council's staff researches proposed bills to determine their potential impact and presents testimony for the industry. In the 1981 session, the council closely followed more than 100 pieces of legislation. Contacts are maintained on a year-round basis with legislative interim committees, state agency personnel who implement the laws through rule making, and federal lawmakers and regulatory agencies. In 1982, during hearings on the state's administration of the federal air pollution control program on prevention of significant air quality deterioration (see section 5.6.1.), the council testified in support of impact-area baseline standards as opposed to statewide standards.

In addition, the council works to inform the public about the merits of and barriers to coal development in Montana. This involves presentations to civic groups, classrooms, and other associations, arrangements for mine tours, and the preparation of informational literature. The council has prepared a brochure entitled "Montana Coal 1982," which includes: information on coal-related state and federal taxes; 1981 figures on royalty payments; mining industry employment and payroll data; the location, quantity, and quality of Montana coal; and a list of the major federal and state laws governing the surface mining of Montana coal. The council also has prepared a slide/tape presentation entitled "Montana Coal: A Treasure Under the Big Sky," featuring the early history of coal formation, discovery, and use in the state, plus current operations, production, and potential. The council publishes a monthly newsletter called the *News Bulletin.* The council's offices are located in Helena.

9.3. MONTANA ENERGY RESEARCH AND DEVELOPMENT INSTITUTE, INC.

The Montana Energy Research and Development Institute, Inc. (MERDI), formerly the Montana Energy MHD Research and Development Institute, was established in Butte in 1974 as a tax-exempt, nonprofit Montana organization for the purpose of developing methods for using and conserving western energy resources and to carry out a major research and hardware phase of the national magnetohydrodynamics (MHD) program.

Since 1974 MERDI has expanded its energy research program to include renewable energy, advanced energy conversion technology, high performance materials for energy conversion devices, and environmental considerations of energy technologies.

In 1980 and 1981, MERDI created three for-profit subsidiaries to carry on portions of the MERDI research and development programs. MERDI's subsidiaries, which are discussed below, are Mountain States Energy, Inc., MultiTech, Inc., and the Center for Innovation, Inc. MERDI itself continues its research and advanced development programs involving energy materials, coal technology, and fuel cells.

The Applied Technology Laboratories (ATL) Division of MERDI has an ongoing program to develop high-performance, high-temperature materials for advanced energy conversion systems. Under a U.S. Department of Energy (DOE) contract, ATL recently developed a new process for manufacturing high temperature ceramic-metal electrodes for MHD generator channels.

Mountain States Energy, Inc. Mountain States Energy, Inc. (MSE), a subsidiary of MERDI, currently operates and maintains the MHD Component Development and Integration Facility (CDIF) for DOE at Butte. The Butte facility is the largest research and development center in the national MHD program.

MHD is a process by which the superheated gases produced by burning coal are forced through a superconducting magnet to produce electricity. MHD has shown great potential in terms of cost, efficiency, and overall environmental performance. Research has shown that over 50 percent more electrical energy can be produced per ton of coal in MHD plants than in conventional coal-fired power plants.

The Montana Power Company (MPC) has considered adding the MHD process to its Salem Project, formerly known as Resource 89, a coal-fired generating plant proposed for construction near Great Falls (see section 3.1.2.3.).

In August 1982, MPC and 23 other utilities from across the country issued a joint report on the development of a commercial MHD plant, possibly in Montana. This report, funded by DNRC under a 1979 legislative appropriation (see section 5.10.2.2.3.), was presented to DOE and Congress to encourage continued funding of MHD research and demonstration efforts. Future funding for MHD facilities is uncertain because of recent federal budget cutbacks.

In November 1982, DNRC awarded a contract to MSE to perform an engineering assessment of the potential for retrofitting an existing utility steam-electric power plant in Montana with an MHD advanced test system. This project will be completed by June 1983.

MultiTech, Inc. MultiTech, another subsidiary of MERDI, provides engineering, environmental, socioeconomic, and technical support services to state, federal, and private clients. Current projects include:

— wind energy programs, including wind site monitoring, design, and development of single-machine installations and wind farm facilities in Livingston, Whitehall, Big Timber, and Glasgow. DNRC has sponsored two of these programs—one to study wind energy potential at Whitehall, Big Timber, and Livingston, and another to install a 100-kilowatt wind farm of four 25-kilowatt wind turbines for the City of Livingston.

— geothermal projects, such as the Montana Warm Springs State Hospital Geothermal Project being developed under a contract with DOE and the Montana Department of Institutions, scheduled for completion in early 1983;

— hydroelectric projects, including a study to determine the feasibility of a small-scale hydroelectric project at Lewistown, Montana;

— biomass projects, including the design and construction of a methane digester using cow manure from a small dairy herd;

— a variety of energy conservation studies;

— environmental studies, including monitoring studies at four potential coal-fired power plant sites in Montana; and

— MHD environmental studies. Under contract to DOE, MultiTech has undertaken a project to identify the major legal and technical aspects of environmental issues that will affect the development of MHD plants.

Center for Innovation, Inc. The Center for Innovation (CFI) was established in 1977 to promote the development of inventions, including those relating to energy, by assisting in all phases of the development process, from evaluation to marketing. DNRC's Renewable Energy Program provided part of the initial funding for the center.

Funding for CFI currently comes from the Small Business Administration's Innovation Support Program. CFI supports inventions by offering technical and engineering evaluation and support, business and market planning, licensing, patent searches, and assistance in obtaining venture capital. CFI has handled ideas relating to solar collectors, fuel savers on internal combustion engines, hydropower devices, magnetic field devices, wind machines, and others. Montanans alone have submitted over 1,200 ideas. The presence of CFI has encouraged inventors to develop their ideas in Montana.

Originally established to serve inventors from states in the Old West Region (Montana, Wyoming, Nebraska, North Dakota, and South Dakota), CFI recently expanded its service range to include Colorado, New Mexico, Iowa, and Utah. It plans to continue to expand its program with the goal of becoming the national and international leader in innovation.

9.4. MONTANA PETROLEUM ASSOCIATION

The Montana Petroleum Association, a division of the Rocky Mountain Oil and Gas Association, is a voluntary, nonprofit association whose purpose is to promote the discovery, development, production, transportation, refining, conservation, and marketing of oil and gas. The association maintains offices in Helena and Billings. Its membership includes those who operate service stations, those who explore for, refine, produce, and transport oil and gas, and those who furnish services and supplies to the industry.

The association represents its membership before legislative bodies and government agencies and presents the industry's point of view to the public, the media, and other organizations.

The association also provides industry data, statistics and information to members, as well as the general public. In its periodic newsletter to members, it reports on oil and gas activities in Montana. The association also prepares a monthly gasoline sales report.

9.5. MONTANA SOLAR ENERGY INDUSTRY ASSOCIATION

The Montana Solar Energy Industry Association (MontSEIA) was formed in 1981 as a nonprofit association dedicated to serving the needs of an emerging solar energy industry within the state. The association, composed of designers, contractors, engineers, architects, and manufacturers involved in renewable energy, is working to establish a positive climate for the development of all renewable energy sources in Montana, including solar, wind, small-scale hydro, and related technologies. MontSEIA provides a mechanism for achieving greater interaction among the individuals and firms working toward developing Montana's abundance of renewable energy resources.

MontSEIA has established a formal code of ethics for individuals and businesses working in the renewable energy field. The code includes standards for equipment selection and installation designed to protect the interests of consumers. The association proposes to develop a certification program for renewable resource products produced and sold in Montana. It also plans to develop a qualified training program for solar installers and to list members in a Montana state solar industry directory. In addition, MontSEIA is developing workshops and seminars for architects, builders, lending institutions, and other interested groups to promote the use of renewable energy. The association has a statewide energy coordinator to oversee development of its programs from its offices in Helena.

9.6. NATIONAL CENTER FOR APPROPRIATE TECHNOLOGY

The National Center for Appropriate Technology (NCAT) was established in 1976 under a grant from the U.S. Department of Commerce's Community Services Administration. Its purpose is to research, develop, adapt, and transfer to low-income communities a variety of appropriate technologies that address the problems of poverty, particularly the problem of increasing energy costs. NCAT, a Montana nonprofit corporation with headquarters in Butte, began work in the spring of 1977.

NCAT's Grants Division has funded local community action agencies and other community-based organizations with the primary goal of demonstrating and applying established appropriate technologies. Grants also have been awarded for demonstrating the feasibility of appropriate technologies still under development, and for developing new ideas and technologies with potential benefits for low-income communities.

As of September 1982, NCAT had awarded 16 grants for projects in Montana. Recent grants went to:

— the first Native American Appropriate Technology and Solar Energy Conference, held at the Rocky Boys Indian Reservation in May 1980;

— MQTV public television in Missoula for a low-power broadcasting model in 1981;

— Glasgow Air Force Base for an automobile recycling and rehabilitation program in 1981 (this project has not been completed); and

— Kevin, Montana, for a solar greenhouse through the Kevin Council on Aging (also not completed).

Until October 1981, NCAT had a staff of about 100. This included a research and development staff, which concentrated on areas such as passive and active solar heating, residential conservation, biomass energy systems, community-scale agriculture, building rehabilitation, small hydropower generation, community energy management, and related topics. The results of these studies have been passed on to the public through grants, publications, and training programs. A recent major project was to produce a passive solar building computer simulation program. Supported by this program, staff architects developed a low-cost house plan that made use of "superinsulation" techniques.

The center's Field Operations Division has helped direct research, grants, information, and other activities to better meet the needs of the poor. The 10 regional representatives and their staffs provided information and technical assistance and helped community action agencies and low-income groups recognize and use appropriate technologies to meet their specific needs.

NCAT's Information Division has published and distributed materials, including a national newspaper, the *Appropriate Technology Times,* to thousands of community action agencies, low-income and appropriate technology groups, the news media, and others. NCAT no longer publishes the *Appropriate Technology Times;* however, a private publishing company that publishes news on alternative energy sources has assumed NCAT's subscriber responsibilities.

Other information materials produced by the center include technical reports, consumer and technical educational materials, handbooks and manuals, bibliographies, resource lists and other reference works, analytical papers and policy statements, and public service announcements, slide shows, and exhibits. NCAT's library and resource center maintains a complete and up-to-date collection of reports, books, and periodicals covering appropriate technology, and responds to many information requests.

In 1980 NCAT established a training program to teach people to use appropriate technologies. In 1981 it taught VISTA volunteers and community action personnel how to weatherize homes, build low-cost energy devices, and conduct community energy management programs.

However, many of NCAT's functions were curtailed with the abolishment of the federal Community Services Administration in October 1981. The 10 field offices were closed and all but 30 of the staff at NCAT's Butte headquarters were laid off.

In May 1982, NCAT signed an 18-month contract with the U.S. Department of Energy (DOE) to review the results of 2,400 small-scale technology grants issued by DOE's Office of Small-Scale Technology. NCAT will produce 15 consumer-oriented publications summarizing the best of the 2,400 projects, including solar energy, wind power, biomass and alcohol fuels, geothermal energy, small-scale hydropower, energy conservation, and integrated systems such as cogeneration and on-farm applications of renewable energy systems.

NCAT's future funding is uncertain. It is searching for new sources of funding through the Department of Health and Human Services, to continue its focus on low-income community sectors, and through the Bonneville Power Administration for specific projects in energy conservation.

NCAT's 1982 publications include manuals and handbooks in the following areas: energy conservation, superinsulation, solar energy, gardening, fuels and biomass, wood/water, transportation, waste recycling, health, education, and energy-related bibliographies.

9.7. NORTHERN PLAINS RESOURCE COUNCIL

Organized in 1972, the Northern Plains Resource Council (NPRC) is an agriculturally based citizens' organization concerned with the effects of large-scale energy and mineral development in Montana. NPRC believes that large-scale industrialization will jeopardize Montana's agriculture and, therefore, should be closely monitored. NPRC's board of directors, comprised of farmers and ranchers, determines council policy.

NPRC has worked for the passage of federal strip mine reclamation legislation. Of critical importance to agricultural people in eastern Montana are two provisions in the Strip Mine Act. One requires the surface owner's written consent before leasing and strip mining of federal coal can take place. The second protects fragile alluvial valley floors.

Over the past two years, the council has been involved in the reauthorization of the national Clean Air Act. It also has taken an active role in the federal coal leasing program, which is undergoing substantial change under the current administration (see section 11.4.). In addition, NPRC has monitored proposals for new leasing in the Powder River and Fort Union coal areas. The council has opposed federal efforts to develop a synfuels industry with federal subsidies, and continues to provide information on

the potential effects of synfuels development on eastern Montana.

The council has been active in many energy issues at the local, state, and regional levels as well. On a regional level, the council has closely followed implementation of the Northwest Power Planning and Conservation Act (see section 6.3.). The council is active with the Western Organization of Resource Councils, which is comprised of organizations in Montana, North Dakota, Wyoming, and Colorado, and employs a full-time representative in Washington, D.C.

On a state level, NPRC has been active in the siting of the Bonneville Power Administration's (BPA) transmission lines from Townsend through western Montana. It has represented local landowners whose land would be crossed by the transmission lines in the Boulder, Deer Lodge, and Missoula valleys. The council has attempted to ensure that the State of Montana and local citizens have a say in the placement of these large transmission lines and also has expressed concern about the loss of tax revenues to local governments since BPA, rather than private utilities, is constructing the lines. Federal agencies, like BPA, are exempt from paying local property taxes. NPRC strongly endorses BPA payments to local governments in lieu of taxes.

In February 1981, NPRC initiated the Montana Rural Energy Project, funded by a grant from DNRC. This one-year public information and education program focused on ways that agricultural people can produce energy on their ranches and farms. The program recognized the opportunity to bolster Montana's agricultural industry by diversifying into small-scale energy production. During the project, NPRC researched and then disseminated information through a multimedia presentation, and printed materials that were distributed throughout the state. The council's ongoing Montana Rural Electric Cooperatives Project teaches co-op members ways to influence electric co-ops to conserve energy and use renewable energy resources. Both of these projects have been sponsored by NPRC's education and research arm, the Northern Plains Project.

At the local level, NPRC reviews energy development proposals, largely through its affiliates. Many of its members belong to one of these 18 local affiliates: Alternative Energy Resources Organization, Boulder Valley Association, Bull Mountain Landowners Association, Clark Fork Basin Protective Association, Dawson Resource Council, Deer Lodge Valley Resource Association, McCone Agricultural Protective Organization, North Boulder Protective Association, Powder River Protective Association, Rosebud Protective Association, Sarpy Protective Association, Stillwater Protective Association, Three Corners Boundary Association, Tongue River Agricultural Protective Association, Tri-County Ranchers Association, Valley Resource Council, Yellowstone Basin Water Use Association, and Yellowstone Valley Citizens Council. The affiliates are involved in issues such as strip mine reclamation in Montana, transboundary air and water pollution from the Canadian Poplar River power plants (see section 11.7.), water use and planning, and alternative ways of meeting Montana's future energy needs.

The council's activities are based in Billings, Glendive, and Helena. NPRC staff work during the Montana legislative sessions to monitor, testify, and report to members through the council's *Legislative Bulletin* on bills of concern to the council.

NPRC publishes a monthly newsletter, *The Plains Truth,* and has printed special papers on strip mining in Montana, mine reclamation, water use and development, social impacts of rapid growth, and synthetic fuels development.

9.8. UTILITIES

This section discusses the innovative programs that Montana's utilities sponsor in the areas of conservation and alternative energy development. The electric energy generation and natural gas operations of the major utilities are presented in chapter 2.

9.8.1. Great Falls Gas Company

Great Falls Gas Company initiated its Residential Energy Analysis Program in June of 1981. As of June 1982, energy audits had been performed on 865 buildings. Audited customers show an average reduction of 18 percent when pre-audit consumption is compared to post-audit consumption.

In tandem with the Residential Energy Analysis Program, the company operates a No-Interest Plan Loan Program that offers interest-free financing to heating customers for implementing conservation measures in their buildings. Since the start of the program in August 1981, 191 loans have been issued totaling nearly $200,000. The average loan amount has been $1,034. Items financed are those measures that would result in a payback of seven years or less. Comparisons of pre- and post-loan consumption records indicate an average 28 percent reduction in energy consumption for all loan customers.

In April 1982, Great Falls Gas Company began a new bill design that incorporated a comparison of weather information so that customers could more easily assess the effects of their conservation efforts. Monthly billing

enclosures provide information on conservation measures and efficient natural gas appliances.

Past efforts of the company in the field of conservation include a low-interest insulation loan program, which financed home insulation for 1,200 customers, and an aerial thermographic flyover in March of 1978. Over 60 percent of the company's customers have visited the offices to view the "heat-loss" photo of their home or business.

The Great Falls Gas Company Consumer Roundtable meets quarterly to examine, with representatives of low- and fixed-income groups, the availability of weatherization, fuel assistance, and other programs to ease the effects of rising fuel costs on these groups.

The company places special emphasis on encouraging appliance dealers and builders to sell energy-efficient models of gas-fired appliances, including water heaters and furnaces, since significant savings can be realized by the consumer who uses these appliances. The program also promotes the use of energy-conserving building practices in new construction.

9.8.2. Montana-Dakota Utilities

In mid-1980, Montana-Dakota Utilities (MDU) began offering an energy conservation program to all residential customers. The free home energy checkup consists of an inspection by a company-trained representative. MDU performs a benefit-cost analysis of several energy-conservation measures and recommends ways to improve energy efficiency and to use alternate forms of energy. Besides providing energy audits on request, MDU will loan up to $1,500 interest-free to eligible customers to pay for insulation, storm doors and windows, and weatherstripping and caulking. Customers have up to three years to repay the loans.

As of June 1982, MDU had completed 3,722 energy audits and had made 477 loans totaling $313,314 in its Montana service area.

MDU continues to make time-of-day electric rates available to both residential and commercial customers. Consumers who use most of their electricity in off-peak hours (10 p.m. to 8 a.m. Monday through Saturday and all day Sunday) are offered substantial savings in their electricity bills. Customers taking advantage of these off-peak hours help reduce peak electrical power requirements, thus lessening the need for future construction of electrical generating facilities.

An energy conservation program conducted by MDU has entered its ninth year. The program, aimed at consumer awareness, involves mass media advertising, free brochures, a 44-page guide to "Common Sense Conservation," and a number of talks and demonstrations presented by consumer service representatives.

9.8.3. Montana Power Company

Energy Conservation. In July 1982, the Montana Power Company (MPC) initiated Phase II of its two-pronged Residential Energy Savings Plan (ESP II). The new program offers, free of charge, a thorough home energy audit to all heating customers. On completion of the audit, specific cost-effective (seven-year payback) weatherization procedures are outlined for the homeowner. Interest-free loans of up to $2,000 with a maximum of 48 months to repay are available from MPC to fund recommended weatherization procedures for residential heating customers. These customers also may be eligible to borrow up to $2,000 interest free for solar water heating systems if their home meets minimum weatherization standards, or a total of $3,000 for both a solar water-heating system and weatherization improvements.

As of July 1982, MPC had completed 13,386 of the 13,562 audits requested by its customers under the ESP I program. The utility has made 4,225 interest-free loans averaging $823.51 each for a total of $3,479,329 loaned. Those customers who participated in both the home energy audit and the interest-free loan program reduced their natural gas consumption by an average of one-third. A how-to-do-it weatherization guide and instructions on how to install insulation wrap for hot water heaters are available as part of the program.

The Montana Power Company has converted 35 of its Missoula Division service vehicles to run on compressed natural gas (CNG) rather than gasoline. The utility is collecting data on the cost effectiveness, safety, convenience, operating efficiency, and pollution-free benefits of using CNG as a primary fuel for motorized transportation. Those data are being made available to city and county officials responsible for operating large vehicle fleets. Plans are underway to convert the entire MPC fleet to CNG.

In addition, a super-insulated residential dwelling has been constructed in the town of Colstrip. The dwelling has been sold and energy consumption is being monitored on a continuing basis.

Low- and Fixed-Income Customers. MPC works closely with the Montana Department of Social and Rehabilitation Services, Human Resource Development Councils, and county public welfare departments to coordinate fuel assistance and weatherization efforts for fixed- and low-income customers. MPC customer-contact personnel have been trained to help eligible customers contact the appropriate agency for crisis assistance. Sponsored by MPC, an independent task force of citizens from around the state was charged with developing solutions to energy-related problems of elderly and low-income people. Its report has been distributed to the governor, state agencies, and the League of County Commissioners.

Alternative Energy. A study was conducted on three homes in Colstrip using solar heat, a ceramic heat-storage system, and conventional resistance heat for space heating. The study was designed to obtain energy data on new types

of residential heating systems and their impacts on the utility. An energy end-use study is underway for residential and small commercial customers. Researchers are gathering baseline data on what energy systems would be suitable for conservation and renewable resources. MPC currently has interface and purchase policies for small power producers that use renewable resources to generate electricity. These policies also apply to cogenerators.

MPC continues to gather wind data from its 160-foot meteorological tower in Livingston. Data also are being collected to correlate power production with availability of wind from the utility's 25-kilowatt wind machine at Livingston (see section 3.4.2.).

Educational Activities. MPC offers several educational programs about renewable resources and conservation for schools and consumer groups across the state. A MPC program for third graders features a 30-minute personal visit from "Captain Power"; an electrical safety unit for sixth graders includes a kit called "Safety Invaders." Among the other activities available from MPC are "The Politics of Energy," a computer-simulation game for high school students. These programs, along with free publications, games, samples, posters, and educational equipment, are listed in MPC's "Teacher's Resource Guide," available from MPC's Consumer Educational Service office in Butte. MPC also provides films on energy topics on a free, five-day loan basis.

9.8.4. Pacific Power and Light Company

The Pacific Power and Light Company (PP&L) has two new energy conservation programs for its customers. It now offers rebates to homeowners who replace domestic electric water heaters with heat pumps or active solar water heaters. The company also offers rebates to owners of electrically heated homes who take weatherization measures, such as adding ceiling and floor insulation, storm doors and windows or double glazing, weatherstripping and caulking, duct insulation, or installing setback thermostats on centrally controlled, multiroom systems. Upon request, PP&L will assist the homeowner in contacting contractors and will make installation arrangements. The company also wraps electric water heaters for their customers free of charge.

Pacific Power and Light Company provides interest-free loans to homeowners in its Montana service area to encourage them to install energy conservation and weatherization devices. PP&L customers who own electrically heated homes built before August 1978 are eligible for loans. The loans have no fixed terms and are paid back when the home is sold or otherwise changes hands. PP&L will perform a free energy analysis for its customers and will advise them on ways to improve energy efficiency.

The company's energy consultants use a pocket-sized touch-tone pad and amplifier to analyze home energy and heat losses. This unit is attached to the customer's telephone. By dialing a toll-free number, the energy consultant contacts General Electric's Mark III computer, which gives immediate information on the amount of energy and money that can be saved by adding insulation, storm doors and windows, etc. Thus, a minimum of time and expense is required for the energy audits.

Between January and August 1982, PP&L had performed 351 of its requested 384 audits and had made 71 weatherization loans averaging $703 each in its Montana service area.

Other PP&L energy savings programs include: conservation incentives for existing homes that comply with the minimum weatherization standards established by the company; the promotion of energy-efficient new residential construction; and technical energy analysis and electric energy conservation recommendations to commercial and industrial customers.

9.8.5. Rural Electric Cooperatives

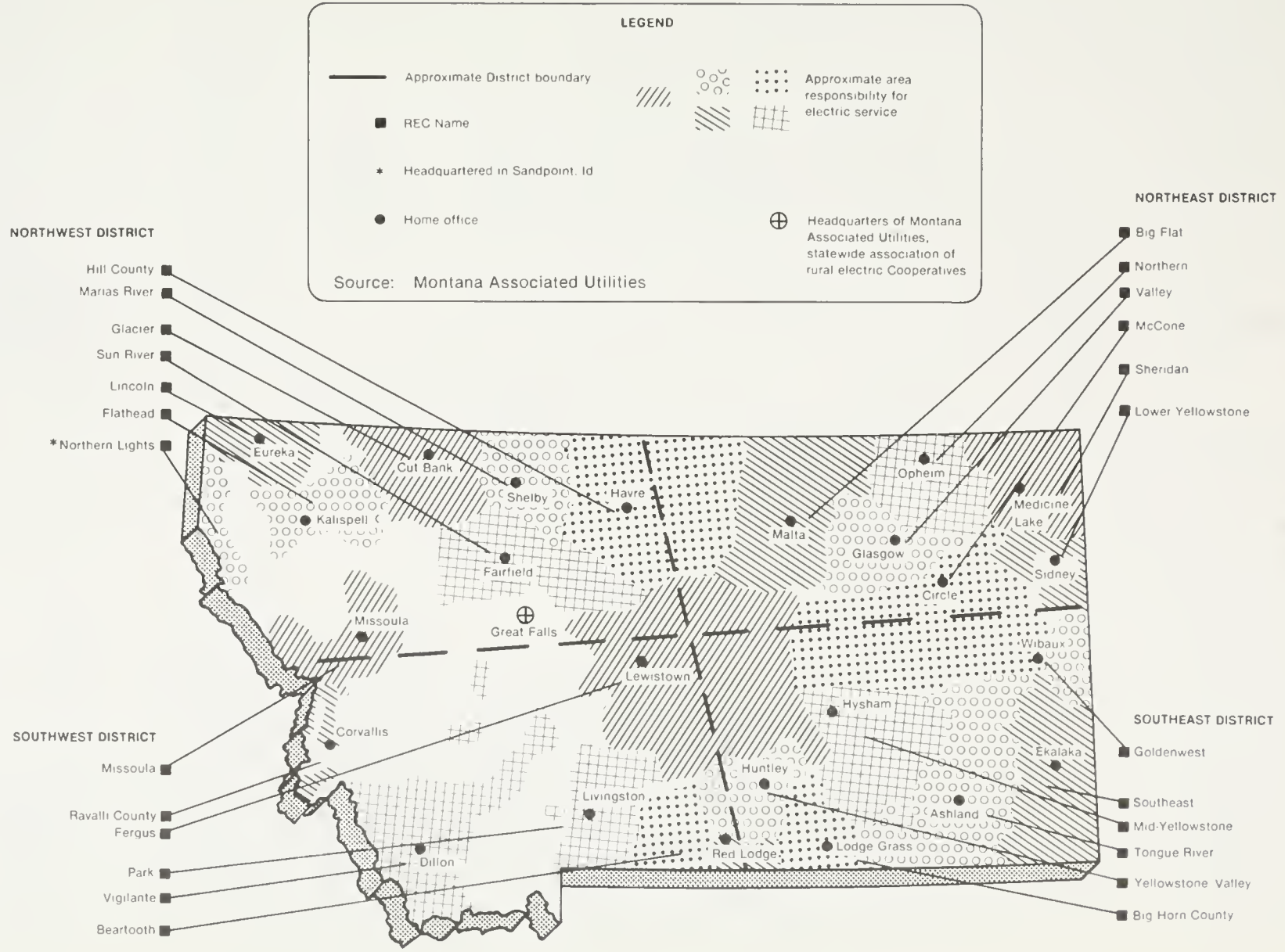
Twenty-six rural electric cooperatives provide service in Montana in the areas shown in figure IX-A. Table IX-1 shows the office location, power supplier, and amount of power sold by each cooperative in 1980.

As noted in table IX-1, all of the cooperatives obtain their power from one or more larger utilities or organizations, including Bonneville Power Administration, Western Area Power Administration, Montana Power Company, Upper Missouri Electric Generation and Transmission Cooperative, and Central Montana Electric Generation and Transmission Cooperative. Sixteen of the cooperatives, as noted in the table, also are members of Basin Electric Power Cooperative, headquartered in Bismarck, North Dakota. Twenty-two are members of Montana Associated Utilities, Inc. (MAU), the statewide organization headquartered in Great Falls.

At its annual meeting in 1982, MAU went on record to promote the conservation of electric energy and encouraged member cooperatives to familiarize themselves with the efficient use of energy. A number of Montana cooperatives already offer energy audits to their customers, and several cooperatives have initiated innovative alternative energy programs. Fergus Electric Cooperative, for instance, is conducting a wind power study at six sites in its 13-county area. The study is funded through DNRC's Renewable Energy Grants and Loans Program.

Western Montana cooperatives in the Bonneville Power Administration's (BPA) service area have participated in a BPA conservation pilot project to test the energy efficiency of irrigation pumps. The purpose of this program is to alert farmers to possible energy savings and to make irrigation pump testing a permanent conservation tool. Western Montana cooperatives also have participated in another BPA pilot project that involves the infrared scanning of residences to determine main areas of heat loss. Also

FIGURE IX-A
MONTANA'S ELECTRIC COOPERATIVES
(by name, district, home office, approximate coverage area)



available to western Montana cooperatives through BPA are: consumer rebate and no-interest loan programs for weatherizing residences; free hot water heater wraps and shower flow restrictors; a program to convert existing street lights into higher efficiency lamps; a program to install, monitor, and evaluate solar domestic hot water systems (available to selected utilities, including the Missoula Electric Cooperative); and a weatherization pilot program that includes energy conservation analyses, no-interest, deferred-payment loans, and consumer programs (available to eligible utilities, including Flathead Electric Cooperative).

TABLE IX-1
MONTANA ELECTRIC COOPERATIVES

	Office Location[1]	Power Supplier[2]	Power Resale Sold in 1980 (kWh)
Northeast District			
Big Flat Electric Cooperative[3]	Malta	Central MT	18,752,554
Northern Electric Cooperative[3]	Opheim	Central MT	26,766,918
Sheridan Electric Cooperative[3]	Medicine Lake	Upper MO	67,600,000
Valley Electric Cooperative[3]	Glasgow	Central MT	18,478,710
Lower Yellowstone REA[3]	Sidney	Upper MO	90,000,000
McCone Electric Cooperative	Circle	Upper MO, Central MT	57,799,848
Northwest District			
Northern Lights, Inc.	Sandpoint, Idaho	BPA	149,952,000 (est.)
Lincoln Electric Cooperative	Eureka	BPA	54,979,000
Marias River Electric Cooperative[3]	Shelby	Central MT	64,687,938
Glacier Electric Cooperative	Cut Bank	Central MT, BPA	127,281,406
Sun River Electric Cooperative[3]	Fairfield	Central MT	73,762,000
Hill County Electric Cooperative[3]	Havre	Central MT	41,862,678
Flathead Electric Cooperative	Kalispell	BPA	112,000,000
Southwest District			
Missoula Electric Cooperative	Missoula	BPA, MPC	110,000,000
Ravalli County Electric Cooperative	Corvallis	BPA	67,584,143
Vigilante Electric Cooperative	Dillon	BPA	92,000,000
Park Electric Cooperative[3]	Livingston	Central MT	31,742,499
Beartooth Electric Cooperative[3]	Red Lodge	Central MT	32,575,262
Fergus Electric Cooperative[3]	Lewistown	Central MT	75,267,000
Fall River Electric Cooperative	Ashton, Idaho	BPA	100,825,950
Southeast District			
Yellowstone Valley Electric Cooperative[3]	Huntley	Central MT	114,360,352
Big Horn County Electric Cooperative	Lodge Grass	MPC	37,850,000
Tongue River Electric Cooperative[3]	Ashland	Central MT	55,489,467
Southeast Electric Cooperative[3]	Ekalaka	Upper MO	12,000,000
Goldenwest Electric Cooperative[3]	Wibaux	Upper MO	9,872,581
Mid-Yellowstone Electric Cooperative[3]	Hysham	Central MT	24,500,000

[1] All offices are located in Montana, unless otherwise noted.

[2] Power supplier abbreviations are as follows: Central Montana Electric Generation and Transmission Cooperative (Central MT); Upper Missouri Electric Generation and Transmission Cooperative (Upper MO); Montana Power Company (MPC); Bonneville Power Administration (BPA). Central MT and Upper MO do not generate any electricity but purchase power from the Western Area Power Administration (WAPA).

[3] Member of Basin Electric Power Cooperative.

SOURCE: Montana Associated Utilities.

9.8.6. Utility Coordinating Organizations

The United States is separated into two electrical regions, with very limited links between the eastern and western parts of the country. The boundary between the two regions passes through eastern Montana. The portion of the state west of this boundary is tied to the Northwest Power Pool; the area east of the boundary is tied to the Mid-Continent Area Power Pool. The Northwest Power Pool is primarily a hydropower system, while the Mid-

Continent Area Power Pool is predominantly based on thermal generation.

Northwest Power Pool—Western and Central Montana. The Northwest Power Pool, a voluntary organization of utilities and federal agencies in the Pacific Northwest, provides immediate emergency backup generation for utilities in the pool, including western and central Montana, for a short time (up to one hour). Through its analysis and monitoring of power loads and resources in the region, the pool acts as a coordinating agency and thereby facilitates voluntary power exchanges between utilities in the pool.

In addition to the generating and transmitting facilities owned and operated by the public and private utilities, several federal agencies have a role in the Northwest Power Pool. The U.S. Bureau of Reclamation and the U.S. Army Corps of Engineers build, maintain, and operate water development projects for the purposes of electrical generation, flood control, water storage, and navigation. Two federal agencies, the Bonneville Power Administration (BPA) west of the Continental Divide and the Western Area Power Administration (WAPA) east of the Divide, build and maintain transmission lines and substations from these federal generating facilities and market this electricity to public utilities, investor-owned utilities, rural electric co-ops, and large industrial facilities (see sections 7.3.3. and 7.3.4.).

The transmission systems operated by BPA and WAPA are interconnected with those built and maintained by the utilities. The entire transmission grid provides the capacity and wheeling capacity to operate the power pool and carry out the load transfer agreements among utilities.

The Western Systems Coordinating Council provides planning, analysis, and load coordination among other utilities and power pools in the western United States and Canada. Covering most of the 11 western states and British Columbia, the council is a member of the National Electric Reliability Council.

Since utilities and federal power agencies have agreed to operate the hydroelectric generating resources of the Columbia River Basin as a single system, the Northwest Power Pool is a more integrated electrical system than other regional power pools. The Pacific Northwest Coordination Agreement, a formal contract between utilities and federal agencies, established a system of load sharing to maximize the hydroelectric generating capability of facilities in the Columbia River Basin.

Mid-Continent Area Power Pool—Eastern Montana. This power pool gives the same type of immediate system coverage for eastern Montana in a short-term operational outage as is provided by the Northwest Power Pool in the western and central areas of the state. Like the Northwest Power Pool, it offers utility planning, analysis, and load coordination for voluntary interutility power transfers. Unlike the Northwest Power Pool, however, the Mid-Continent Area Power Pool is a thermal-based generation system with no regional utility load-sharing agreements or integrated system management. The Mid-Continent Area Reliability Council is analagous to the Western Systems Coordinating Council.

10

INDIAN TRIBES AND ENERGY DEVELOPMENT

Like other state residents, Montana's native American population is affected by the impacts and benefits of energy-related development. But tribal sovereignty over reservation activities, the presence of large fossil fuel deposits on a number of reservations, and the geographic proximity of several reservations to specific energy development plans have placed the tribes in a unique and important position.

Several recent national developments will affect energy resource activities on Indian reservations in Montana. In January 1982, the U.S. Supreme Court ruled that Indian tribes have the right to collect severance taxes on tribally owned natural resources. This undoubtedly will have a significant impact on natural resource development on reservations. The court ruling requires that Indian severance taxes must be approved by the U.S. Department of the Interior (USDI). USDI currently is developing guidelines for approving severance taxes; these are scheduled to be issued in the Federal Register in early 1983. The Bureau of Indian Affairs (BIA) has proposed that a tribe be required to prepare an economic impact statement before it may impose a severance tax. This proposal has met with tribal opposition. USDI is considering adding a similar requirement to its guidelines.

In 1982 Congress passed a law allowing Indian tribes to enter into new forms of agreements with private resource developers. The Indian Mineral Development Act of 1982 (see section 4.2.6.) authorizes tribes to share in the ownership and profits of a resource venture. In the past, tribal contracts were subject to the 1938 Indian Mineral Leasing Act, which allowed tribes to negotiate for resource development only by leasing resource lands to developers. Under the new law, contracts between tribes and developers are subject to approval by the Secretary of the Interior. The law also allows tribes to request the secretary to provide expertise and technical advice in negotiating agreements.

In 1982 the 9th U.S. Circuit Court of Appeals overturned a 1979 federal district court ruling concerning jurisdiction over Indian water rights claims. The district court had ruled that although the federal district court had jurisdiction over claims to federal reserved water rights, including Indian water rights, considerations of wise judicial administration required the adjudication of such rights in the ongoing water adjudication proceedings in state courts. However, the U.S. Circuit Court ruling said that Montana had disclaimed jurisdiction as a condition of its statehood in 1889 and that Montana courts cannot exercise jurisdiction over Indian water rights without tribal consent. The ruling assigned jurisdiction of Indian water rights claims to federal district court.

The State of Montana is concerned that Montana residents whose claims conflict with tribal claims may have to defend their claims in two separate proceedings—state and federal—and has petitioned the U.S. Supreme Court to review the matter. The Supreme Court will hear the case in the spring of 1983; a decision is expected by the summer of 1983.

Several Montana tribes currently are negotiating with the state's Reserved Water Rights Compact Commission on water rights issues. Tribes negotiating with the commission include those of the Fort Peck, Northern Cheyenne, Fort Belknap, Crow, and Rocky Boys reservations. Negotiations with the Flathead Reservation tribes were ceased by action of the tribal council in 1982. The Blackfeet Tribe has expressed opposition to negotiation.

Seven Montana Indian tribes belong to the Council of Energy Resource Tribes (CERT), which is described in section 6.1.

The following is a partial list of current energy-related activities and energy development plans involving Montana's Indian tribes.

10.1. ASSINIBOINE AND SIOUX TRIBES OF THE FORT PECK RESERVATION

The Fort Peck tribes have conducted air and water quality monitoring on the reservation under U.S. Environmental Protection Agency (EPA) and tribal grants. These studies are being used to develop tribal codes and regulations for pollution control. The studies also have resulted in an application for redesignation of the reservation to Class I air quality status. Hearings on the proposed redesignation were held on the reservation in August 1982; the tribal council decided in January 1983 to proceed with the application. EPA could act on the redesignation request in early 1983.

Class I air quality status could affect plans for several proposed energy developments near the Fort Peck Reservation, including federal coal development in the area. Basin Electric Power Cooperative has considered the Circle area for two 500-megawatt coal-fired power plants (see section 3.1.2.1.). Dreyer Bros., Inc., has planned a fertilizer and synthetic fuels plant since 1974 (see section 3.1.4.1.), and Farmers Potash Company has proposed a coal-burning facility to refine potash into fertilizer (see section 3.1.4.2.). In addition, the Fort Peck Reservation is close to the Poplar River power plant complex in Saskatchewan (see section 11.7.). Although the U.S. government does not have authority to limit air pollution from Canadian sources, that pollution could be taken into account when new sources are proposed in the United States.

The tribes received a U.S. Department of Energy (DOE) grant in 1979 for a feasibility study of using geothermal energy for space and water heating. Because of budget cutbacks, DOE has not reissued the geothermal grant, but the tribes have continued investigation of the use of geothermal as an energy source for an ethanol plant. The studies are complete, and the tribes are currently investigating alternative sources of funding assistance for an ethanol plant.

The tribes have continued to accept bids for coal and gas exploration leases on the reservation. Companies currently exploring for oil and gas on the reservation include Exxon, Superior, Probe, W.R. Grace, and Century Oil.

Negotiations between the Northern Border Pipeline Company and the tribes resulted in a right-of-way easement across the reservation. The agreement included: preferential employment of local residents during construction; restoration of land surfaces and contours as far as is practicable and to the reasonable satisfaction of the tribes; and the provision of a tap in the line on the reservation so that the tribes could purchase gas as needed.

Because of budget constraints, the tribes have tabled plans for a small-scale coal strip mine on the reservation. The mine was to have been primarily for domestic use, with possible future sales to private entities. The tribes have subsequently shifted their focus to oil and gas development. In February 1982, the Minerals Resource Office (formerly the Tribal Research Office) was established to gather data on tribal resources with the goal of developing natural resource planning and management strategies.

The tribes also are investigating the feasibility of developing the reservation's large silica deposits. Silicone resin is used in electricity-producing solar photovoltaic cells.

10.2. BLACKFEET TRIBE

In the spring of 1981, the Blackfeet Tribal Council approved a proposal by the Denver-based GeoData Corporation to conduct seismic exploration along the Rocky Mountain Front on the Blackfeet Reservation. Along with ARCO, Chevron, Amoco, and Mobil, GeoData is one of several oil and gas companies that are currently negotiating with the tribe for oil and gas development.

In March 1982, the tribe leased over 117,000 acres of tribal land to Berenergy Corporation of Denver for oil and gas development. Another March lease sale involved 128,192 acres. The BIA approved an acreage extension of a joint venture between the tribe and Damson Oil Co., which plans to explore and develop oil and gas resources underlying tribal lands bordering Glacier National Park. Another lease sale was held in September 1982. In early 1983, the Blackfeet Tribal Council plans to offer nearly a million acres of land for oil and gas development.

In May 1983, the Blackfeet Tribe announced the formation of a Blackfeet Oil Company that will conduct all new exploration, development, and production of oil and gas on the reservation. The new company will employ members of the tribe and provide training programs for them.

On October 1, 1982, the Blackfeet Tribe announced that it would begin taxing oil and gas production on its reservation following a U.S. Supreme Court decision that allows Indian tribes to impose severance taxes on production of minerals owned by tribes on their reservations. The State

of Montana has collected taxes from oil and gas production on the Blackfeet Reservation for over 40 years. In 1978, the tribe filed suit to prohibit the state from imposing its taxes on oil and gas produced by non-Indians leasing oil and gas from the Blackfeet Tribe. The U.S. District Court in Great Falls held that a 1924 law authorized state taxation of the tribe's oil and gas. In December 1982, the 9th Circuit Court of Appeals upheld the decision. The Blackfeet Tribe plans to appeal.

In 1982 the Blackfeet Tribe received a $49,988 grant from the Bonneville Power Administration to develop an energy conservation and production program. The project will study electricity use patterns, conservation potential, and wind energy potential on the reservation.

10.3. THE CHIPPEWA-CREE TRIBE OF THE ROCKY BOYS RESERVATION

The Tribal Natural Resources Office has been conducting a minerals assessment on the Rocky Boys Reservation since 1981. The project, which is being conducted in cooperation with the U.S. Bureau of Mines, is scheduled for completion in 1984.

The tribe has also studied the potential of mining coal on the reservation for domestic fuel supplies. A decision on whether to proceed with coal mining plans will be made when the minerals assessment has been completed.

Seven wells currently are producing oil and gas on the reservation. The tribe has postponed plans to begin seismic studies for further oil and gas exploration.

10.4. CONFEDERATED SALISH AND KOOTENAI TRIBES

The Confederated Salish and Kootenai Tribes (Flathead Reservation) received Class 1 air quality status for their reservation in the summer of 1982. The tribes have received EPA and BIA grants totaling approximately $65,000 for an ongoing study to monitor air pollution on the reservation and to study the tribes' legal authority to control pollution within the reservation borders.

Reservation lands have been included in a proposed route for the Northern Tier crude oil pipeline. The tribal council requested an environmental study of the Northern Tier route; the final report, whose cost was reimbursed by Northern Tier Pipeline Company, was completed in 1980.

In July 1981, tribal members approved a referendum giving the Northern Tier Pipeline Company a 62-mile easement through the reservation. The 30-year contract would pay the tribes $1.85 million when pipeline construction begins and the same amount when it is finished. The company would pay $850,000 per year, with annual cost-of-living adjustments, to the tribes. The exact route through the reservation has not yet been chosen, although a corridor has been identified. Section 3.1.5.1. gives the current status of the Northern Tier Pipeline proposal.

Reservation lands have also been included in route proposals for the Bonneville Power Administration's (BPA) transmission lines to carry power from Colstrip Units 3 and 4 to the Pacific Northwest. BPA prefers a powerline route to the south of the reservation; if that route is selected, the powerline would not directly affect the reservation. Section 3.3.1.3. discusses the powerline siting issue in depth.

The Montana Power Company (MPC) now operates the Kerr Dam on the Flathead Reservation. In 1980 MPC's license to operate the dam expired; the company presently operates the facility on a yearly license renewal basis. The tribes have applied to the Federal Energy Regulatory Commission (FERC) for a license to operate the dam, but no action has been taken on the competing applications. MPC also is considering expanding the Kerr facility, and has proposed dams at Buffalo Rapids 2 and 4 (see section 3.2.2.1.). The utility and the tribes have been unable to agree on management and ownership of the facilities and, as a result, planning for them has been delayed.

Tribal members have long opposed the construction of the proposed hydroelectric dam at Kootenai Falls (see section 3.2.2.2. for a description of the project). The tribes claim that construction of the dam would cause the loss of a sacred area and food sources that have cultural or religious significance. Tribal representatives have participated in FERC's administrative hearings on the project and have presented testimony at public meetings held by DNRC to gather comments on its draft environmental impact statement for the proposed dam.

The tribes currently are studying the feasibility of several high-head, low-flow microhydro projects on the reservation. Each project would have an installed capacity of approximately 1/2 megawatt or less. A total generating

potential of 10 megawatts has been identified for waterways on the reservation. If the feasibility study results are favorable, the tribes will develop one small pilot plant. If that plant is successful, they plan to develop the rest of the sites. The Bonneville Power Administration gave the tribes a $53,696 grant for the study.

Under a BIA grant, the tribes began drilling several geothermal wells near Hot Springs in August 1982 to determine the geothermal resource of the area. The tribes plan to submit a proposal to BIA for funds to continue the study through fiscal year 1983. No development plans have been proposed.

10.5. CROW TRIBE

In 1980 the Crow Tribe and the Shell Oil Company approved an agreement for leasing and mining approximately 190 million tons of coal on the Crow Reservation over a 26-year period (see section 7.5.3.). The Bureau of Indian Affairs completed an environmental impact statement on the project in 1981 and the contract was approved by the Department of the Interior in April 1983. The agreement calls for mine construction to begin in 1984 with coal shipments to begin in 1987. However, actual work on the mine will depend on coal sale contracts.

The tribe, Pacific Coal Gasification, and Fluor Engineers and Construction, Inc., were given a $2.7 million U.S. Department of Energy (DOE) grant in 1980 to study the feasibility of constructing a synthetic fuels plant on the reservation. The study, which began in 1981 and was completed in the fall of 1982, concluded that the synfuels project is not economically feasible at the present time; however, proponents have stated that the project may become feasible by the end of the century. The Council of Energy Resource Tribes (CERT—see section 6.1.) conducted the environmental portion of the study and used the gasification study as a model for developing an environmental review process for resource development on other tribal lands. The project developers agreed to abide by CERT's recommendations for environmental review, which include keeping state facility siting authorities apprised of its plans.

The tribe also received a DOE grant in 1980 to study the feasibility of building a coal-fired electric generating plant on the reservation (see section 3.1.2.2.). In 1982 the Crow Tribal Council approved plans to construct a 1,000-megawatt plant on the reservation. Two alternative sites currently are being considered, and the tribe is seeking a company to construct and operate the plant.

Along with the Montana Power Company, Westmoreland Resources, Marcus Nance, and Montco, the Crow Tribe challenged the neighboring Northern Cheyenne Tribe's Class I air quality status, which could affect energy development in the area, including development on the Crow Reservation. The U.S. Supreme Court ruled against the Crow Tribe and developers by upholding the Class I status in 1981.

The Crow Tribe owns mineral rights on its reservation and claims mineral rights on part of a large area adjacent to the reservation, called the Ceded Strip. The Ceded Strip was formerly part of the Crow Reservation, but was ceded to the United States in 1904. Presently, only one energy developer, Westmoreland Resources, Inc., is mining Crow-owned coal. Its mine is off the reservation, on the Ceded Strip. Since 1975, Westmoreland has paid approximately $50 million in coal severance taxes and gross proceeds taxes on its Ceded Strip mine.

The Crow Tribe has challenged the State of Montana's right to levy its taxes on any producer of Crow-owned coal, and seeks refund of all taxes paid by Westmoreland. The U.S. District Court in Billings dismissed the tribe's case. The 9th Circuit Court of Appeals held that the state's imposition of the severance and gross proceeds taxes may violate a 1938 law governing mining of Indian minerals and that it may infringe on the tribe's right to govern itself. In October 1982 the U.S. Supreme Court refused to review the 9th Circuit ruling and the case was remanded to the U.S. District Court in Billings for trial.

The tribe has attempted to levy its own taxes on its coal. The U.S. Department of the Interior has approved the tribal tax for on-reservation mining, but has not yet approved imposition of the tribal tax on off-reservation mining.

During the second half of 1982, the tribe leased 39,000 acres of land for oil and gas exploration and advertised another 168,000 acres for lease. ARCO has expressed interest in oil and gas development on the reservation. The tribe also is conducting, through CERT, a DOE-funded methane gas feasibility study.

10.6. GROS VENTRE AND ASSINIBOINE TRIBES OF THE FORT BELKNAP RESERVATION

In 1981 the Fort Belknap tribes received an Environmental Protection Agency (EPA) grant to study air quality on their reservation. Funding for the study has been extended through April 1983. The study will result in a comprehensive air quality and monitoring plan that will be incorporated with the tribe's water quality management plan, completed in September 1980 under an EPA grant. Together, the plans will comprise a single, comprehensive environmental management plan for the reservation.

The Fort Belknap tribes presently are conducting preliminary feasibility studies on several types of resource development, including small-scale coal development, geothermal energy development, and open-pit bentonite mining. Seismic tests are planned to determine the extent of mineral reserves on the reservation.

10.7. NORTHERN CHEYENNE TRIBE

In September 1980, the Northern Cheyenne Tribe and the Atlantic Richfield Corporation (ARCO) signed a $7.3 million agreement for oil and natural gas exploration, development, and production on their reservation southeast of Billings. ARCO began drilling its first test hole on the reservation in August 1982.

Some members of the tribe have objected to the contract; several hundred tribal members signed a petition requesting that all resource negotiations be suspended until a comprehensive resource development plan could be developed and approved by referendum vote. The petition also would have prohibited any tribal council member, tribal employee, tribal attorney, or other tribal personnel from having any personal financial interest in resource development. The petition further requested that any resource development contract made without approval by tribal referendum be voided.

The tribal council refused to hold the requested referendum until the Bureau of Indian Affairs intervened. The subsequent referendum upheld the tribe's contract with ARCO. To clarify the issue, the Department of the Interior ruled in 1982 that the Northern Cheyenne tribal constitution does not grant the tribe the right to insist that resource decisions be approved by referendum before a contract is signed, since the constitution establishes a representative government. Tribal members may, however, challenge an existing contract by referendum.

In conjunction with conditions to the state siting certificate for Colstrip Units 3 and 4, the tribe reached an agreement with the Montana Power Company (MPC) that allows for preferential hiring of Indians from the reservation for Colstrip 3 and 4 construction, as well as training programs and impact assistance funds for the reservation.

Joint support for air quality monitoring on the reservation is being provided by the Environmental Protection Agency and MPC. The Northern Cheyenne Tribe redesignated its reservation to Class I air quality status in 1977.

Recently the Northern Cheyenne's Class I status was challenged in court by the neighboring Crow Tribe. The Crows are concerned that the Class I status could inhibit future plans for a coal-fired power plant and a coal gasification plant on the reservation. Several energy companies, including Montco, Marcus Nance, Westmoreland Resources, and MPC, which also have development plans for the area, have joined the challenge. The Northern Cheyenne's right to protect the air quality of the reservation was affirmed by the 9th U.S. Circuit Court of Appeals. The case was appealed to the U.S. Supreme Court, which upheld the Circuit Court ruling in November 1981.

In 1982 the Northern Cheyenne Tribe announced that the tribe and individual members of the tribe may own land and mineral rights in an area that Montco has proposed for strip mining. The land in question is on the east side of the Tongue River, at the site of the present Marcus Nance Ranch. The tribe contends it was never compensated for this land when the federal government moved tribal members from the land to consolidate the reservation in the late 1800s. The tribe is extensively researching the legalities of the issue; the study is scheduled for completion in early 1983.

In 1982 the tribe attempted to halt the U.S. Department of the Interior's (USDI) scheduled April 28 lease sale for coal in the Powder River Basin (see section 11.4), which included tracts near the reservation. The tribe charged USDI with gross negligence in its Powder River environmental impact statement (EIS), contending that the EIS failed to consider the socioeconomic impacts of the sale on the reservation—which would be surrounded on three sides by coal development—while recommending impact aid monies for non-Indian communities in the area. The tribe unsuccessfully petitioned the U.S. District Court in Washington, D.C., for a temporary restraining order

postponing the lease sale. The tribe currently is involved in litigation against the Secretary of the Interior on the issue. The case was heard in U.S. District Court in Billings in December 1982; a decision is expected in the spring of 1983.

Although the tribe historically has opposed coal development, the Northern Cheyenne Tribal Council recently has shown interest in coal development options just across the reservation boundary. The tribe is exploring the possibilities of a joint venture with a private energy firm to build a coal coking facility. In 1981 the tribal council opposed an "Unsuitability Petition" (see discussion of the Surface Mining Act in section 7.5.7.1.), filed to protect the Tongue River Valley on the eastern boundary of the reservation. Barring mining in the valley would affect the tribe's coal development plans elsewhere in the vicinity.

11

ENERGY ISSUES:

A STATUS SUMMARY

11.1. COAL SEVERANCE TAX CHALLENGE

Background. Since its enactment in 1975, the Montana coal severance tax has sparked much debate and national attention, including court and congressional challenges.

Montana is one of 33 states that levy severance taxes on the natural resources within their boundaries. These natural resources range from coal, oil and gas, uranium, iron ore, and timber to limestone, gravel, and even fish. Michigan, in 1846, was the first state to impose a severance tax. Texas followed when it levied a severance tax on oil in 1909. Montana began taxing coal in 1921. The 1975 Montana Legislature set the present rate of the state's coal tax. The law established a variable tax rate depending on the coal's heating value (Btu) and the method of extraction—surface or underground. Almost all Montana coal is surface mined and has a Btu value high enough to be taxed at the rate of 30 percent of the contract sales price at the mine. The effective rate of the tax is about 22 percent because coal companies are allowed to deduct all federal, state, and local production taxes from the severance tax.

In fiscal year 1981, the Montana coal severance tax generated $70.4 million. Revenue for fiscal year 1982 was $86.2 million; revenues for fiscal year 1983 are expected to be close to $85.3 million. (A table showing tax collections on the production of Montana coal from 1971-82 is presented in section 4.1.5.1.) Revenue collected from the severance tax is allocated to the permanent coal tax trust fund, the state general fund, an educational trust fund, a local impact account, public school equalization aid, alternative energy programs, parks acquisition and cultural projects, renewable resource development, water development, libraries, counties for land-use planning projects, and conservation districts. (See section 4.1.5.1. for the percentage of coal tax revenues allocated to each of these accounts.)

While opponents of Montana's coal severance tax contend that the tax rate is excessively high, the State of Montana maintains that the actual severance tax revenues collected by the state are small when compared to amounts raised by some other states. In 1981 Montana collected $99 million from all severance taxes (coal and oil). Wyoming, in comparison, collected $138 million. Texas, with a 4.6 percent tax on oil and a 7.5 percent tax on natural gas, brought in $2.2 billion. Alaska increased its oil tax to a 15 percent maximum and collected $1.1 billion, not including what the state received in royalty payments. Louisiana collected $815 million, Oklahoma $601 million, and New Mexico $323 million from severance taxes in 1981.

Minnesota, one of the principal opponents of the Montana coal tax, earned more revenue in 1980 from its severance tax on iron ore than the $75 million generated by Montana through its coal tax. Nationwide, severance taxes generated about 3 percent of total state revenues in 1981. Of the 33 states that levy severance taxes, Montana ranked 11th in total revenues generated.

The Court Challenge. On July 2, 1981, the U.S. Supreme Court upheld Montana's right to levy the 30 percent severance tax on coal mined in the state, ending a three-year challenge to the tax. The legal battle began in 1978 when several coal companies and utilities charged that the tax unconstitutionally limited interstate commerce and was not fairly related to the benefits that companies paying the tax derived from the state. The high court's decision upholds the power of states to raise revenue from the natural resources within their boundaries, although the decision leaves open the issue of federal limitations on the rate of such taxes by deferring rate limitation to Congress.

Congressional Challenge. Federal legislation to limit state severance taxes was first introduced in 1979. Those proposals would have established a national limit of 12.5 percent on any state energy resource severance tax. Had that limit been in effect in 1980, Montana would, in that year, have lost around $40 million—more than half its severance tax revenues. The U.S. House Energy and Commerce Committee has been the main forum for those seeking a coal severance tax limit. The committee reported a coal tax limit bill in 1980, but the full House failed to consider the bill prior to adjournment, and the legislation died. The committee held hearings on a similar bill in the fall of 1981, at which time the governor of Montana, all members of the Montana congressional delegation, and representatives from other western states testified against the bill. Opponents of the tax limit argued that costs of coal development, both economic and social, are high, and that states should be allowed to put a portion of coal tax revenues aside for the future. They testified that the tax adds only a few cents per month to residential utility bills in areas where the coal is consumed.

Supporters of the tax limit stated that revenue generated from such taxes is more than enough to cope with energy development problems. They contended that the natural

resources being taxed by coal-rich states are national resources that should benefit all states, not just a few.

A regional association of investor-owned utilities, the National Coal Consumers Alliance, has been the primary lobbying force for severance tax limitation. Another active advocate of a tax limit has been the Northeast-Midwest Coalition, which is made up of over 200 members of Congress.

In response to the growing congressional threat to the state coal tax, the 1981 Montana Legislature appropriated state funds to defend the tax before Congress. The state contracted with the firms of Leon G. Billings and Richard Whalen of Washington, D.C., to represent the state's position regarding the tax.

Two bills to restrict state severance taxes were introduced in Congress in 1981; both bills died without final action at the end of the session. The president has publicly opposed federal limitation of state revenue sources and many members of Congress have recognized that a reduction in coal severance taxes would have little effect on individual residential electricity rates.

Near the end of the first session of the 97th Congress, the debate over severance taxes had shifted to taxes on petroleum and to other less direct proposals that would penalize states dependent upon severance tax revenues by limiting the allocation of federal grants-in-aid. In May 1982, the Northeast-Midwest Coalition introduced a proposal to limit severance taxes and redistribute federal funds. H.R. 6330 would have capped severance taxes on oil, gas, and coal at 1978 levels and would have imposed a 30 percent federal tax on crude oil. It is estimated that H.R. 6330, if enacted, would have cost Montana over $68 million in severance tax revenues from coal, oil, and natural gas in fiscal year 1982, nearly $30 million more than would have been lost under the proposed 12.5 percent severance tax limit.

Although Congress did not pass any severance tax limits in 1982, representatives of energy-producing states are concerned that problems could develop as Congress attempts to enact new federal revenue sources in an effort to balance the federal budget. Many members of Congress advocate rewriting the formulas used to appropriate federal monies to the states. One such proposal would base future federal payments on tax capacity—which would take severance taxes into account—instead of the traditional standard of per capita income, which does not consider severance tax revenues. The end result would be a substantial loss of federal dollars flowing to energy-producing states like Montana.

Emerging Issues. With the constitutionality of the coal severance tax affirmed by the U.S. Supreme Court and the direct congressional assault diminished, public attention and debate within Montana have turned to discussion of the future use of coal tax revenues and trust funds.

The 1981 Legislature authorized use of a portion of the coal trust fund principal to pay water development bonds. A portion of the interest revenue was allocated for highway construction and maintenance. In the summer of 1982, a constitutional amendment that would have tapped 20 percent of the coal trust fund revenues for highways failed to receive the necessary signatures for ballot consideration. An initiative that would authorize investment of 25 percent of the coal trust fund in-state was approved by voters in the November 1982 election. The use of the coal severance tax and the investment of the permanent coal trust fund have become issues of great concern within the state.

11.2. COAL SLURRY PIPELINES

1982 saw a resurgence of discussion over the use of coal slurry pipelines to transport Montana coal out of state. Slurry pipelines transport particles of coal suspended in a liquid, usually water; coal slurry generally is a one-to-one mixture by weight of water and pulverized coal. Various proposals have been made to construct a slurry pipeline to serve the Powder River Basin coal fields of eastern Wyoming and Montana. However, slurry pipelines effectively were banned as an alternative means of transporting coal in the 1970s, largely due to the opposition of the railroads and because the agricultural and environmental communities felt threatened by large industrial demands for water, primarily from the Yellowstone River Basin. The 1979 Montana Legislature passed a law declaring that "...the use of water for the slurry transport of coal is detrimental to the conservation and protection of the water resources of the state. The use of water for the slurry transport of coal is not a beneficial use of water" (MCA 85-2-104). Montana law also requires that the Legislature must approve the out-of-state export of Montana water (MCA 85-1-121).

In 1982 South Dakota signed a contract with Energy Transportation Systems, Inc. (ETSI) that will allow the company to transport water from the Oahe Reservoir on the Missouri River in South Dakota 280 miles to the coal fields of Wyoming. The water will be used to slurry Wyoming coal 1,600 miles to power plants in Arkansas and adjacent states. South Dakota will receive total payments of $1.45 billion over the next 50 years from the sale and will use the proceeds to finance a water development program for agricultural, rural, municipal, and recreational uses.

The State of Montana plans to evaluate the possibility of selling surplus and stored water to finance costly water

development projects—projects which will be especially difficult to finance due to cutbacks in federal funds. DNRC prepared a background report in 1982 on the advantages and disadvantages of using water to transport coal.

The DNRC study addressed the question of how much water would be required to transport coal via slurry pipeline. According to the report, approximately 370-750 acre-feet of water would be needed to carry 1 million tons of coal via a slurry pipeline. (The water requirement of coal slurry pipelines depends on the moisture content of the coal to be transported.) The amount of water needed to process the same amount of coal at a thermal electric generating plant would be 2,790-3,750 acre-feet. Those who favor coal slurry pipelines point out that it may make more sense to ship coal out of state, some of it via coal slurry pipelines, than to construct additional coal-fired power plants in Montana.

In 1981 approximately 33 million tons of coal were mined in Montana. Between 12,210 and 24,750 acre-feet of water would be required to slurry that amount of coal.

Critics of coal slurry pipelines argue that much more information on Montana's long-term water requirements for domestic, municipal, instream, irrigation, and industrial uses is needed before the state changes its current policies prohibiting the export of water and the use of water for coal slurry pipelines. Opponents of coal slurry pipelines have also questioned the need for a major new coal slurry pipeline in Montana, claiming that no significant increase in the market for Montana coal is expected for many years to come.

The debate over coal slurry pipelines has also focused on their potential economic impacts on railroads, as well as on their comparative employment effects. If railroads were to lose business to coal slurry pipelines, it could result in substantially higher rates to noncoal shippers. The construction of coal slurry pipelines could also cause the loss of permanent railroad jobs within the state. According to the DNRC report, slurry pipelines would provide one-third to one-half as many permanent jobs as coal unit train operations. Regarding the comparative economy of coal slurry pipelines, the report indicated that they appear to have advantages over railroads when large volumes of coal must be transported more than 200 miles to a small number of destinations.

The report also states that water for industrial purposes—which could include water for coal slurry—is available in both the Missouri and Yellowstone river basins in Montana; water for industrial use could be marketed from the Tongue River, Yellowtail, and Fort Peck reservoirs. In December 1982, the U.S. Bureau of Reclamation (USBR) released a programmatic EIS on marketing up to 525,000 acre-feet per year of industrial water from Montana's Yellowtail Reservoir and Wyoming's Boysen Reservoir.

DNRC has a master contract with the USBR that allows DNRC first option to market 300,000 acre-feet annually from Fort Peck Reservoir to potential industrial water users, as discussed in section 7.5.6. DNRC has not yet marketed any Fort Peck water. According to the report, the amount of water available for appropriation for industrial development on the Missouri River mainstem below Fort Peck is not known, but might be as much as 1 million acre-feet per year.

Interstate politics and other legalities will influence the ability of a state to sell water for industrial use. In the Yellowstone Basin, the three states that signed the Yellowstone River Compact—Wyoming, Montana, and North Dakota—must approve all waters transferred outside the basin. The lower Missouri Basin states—Missouri, Iowa, and Nebraska—are concerned that if the upper basin states—Montana, North Dakota, South Dakota, and Wyoming—sell water for slurry use, the amount of water available to the lower states will be reduced. Legislation has been introduced in Congress that would require the approval of all Missouri Basin states before water could be diverted outside the basin. This legislation, in effect, would prohibit all out-of-basin diversions. The downstream states are challenging South Dakota's contract with ETSI in court. Because South Dakota's action involves sale rather than taxation of an interstate resource, there is likely to be increased discussion of federal regulation of state controls over interstate resources. It is also possible that Montana's statutes declaring coal slurry pipelines to be a nonbeneficial use of water could meet with constitutionality challenges.

A major obstruction to the use of coal slurry pipelines has been the inability of pipeline companies to secure easements, particularly along railroad rights of way. Railroad companies have been a major force in blocking successive attempts at passing federal legislation that would give pipeline companies the right of eminent domain. These companies claim that doing so would create inequitable competition. Legislation that would grant the federal power of eminent domain to pipeline developers and allow them to condemn private land was introduced in 1981 in both the U.S. House of Representatives and the Senate (see section 4.2.4.). The House Public Works and Transportation Committee approved such a measure in July 1982. The Senate Energy Committee adopted several amendments to a similar bill. The amendments would protect state water rights and, in effect, would require state approval of a pipeline before the federal government could permit companies to acquire a contested right of way. Congress failed to pass eminent domain legislation in 1982; similar measures have been reintroduced in 1983.

Several companies have shown interest in using slurry pipelines to transport Montana and Wyoming coal to the Southwest, Midwest, and West Coast. These companies include Powder River Pipeline Inc., Texas Eastern, and ETSI.

In August 1981, Powder River Pipeline, Inc., based in Billings, proposed to construct a 1,300-mile slurry pipeline that would transport approximately 25 to 36 million tons

of coal per year from the Powder River Basin in Montana and Wyoming to the Midwest and Great Lakes states (see section 3.1.7.1.). Powder River Pipeline has expressed interest in using Missouri River water to slurry the coal; another alternative being considered is using treated waste water from the Black Hills of South Dakota.

In another current coal slurry pipeline issue, the Council of Energy Resources Tribes (see section 6.1.) is proposing to conduct a study on the feasibility of using liquid carbon dioxide, rather than water, as the transport medium in coal slurry pipelines. Carbon dioxide reserves have been found on the coal-producing Indian reservations in Montana.

11.3. EXPORT PREFERENCE POLICY

An informal policy in Montana has favored transporting coal out of state rather than converting it within Montana to other forms of energy (e.g., electricity) for use by consumers in other states. Governor Thomas L. Judge, in his energy message to the 1977 Legislature, stated: "I believe that Montana should continue to encourage load center conversion of our coal. Conversion within Montana should be for Montana needs." Governor Ted Schwinden has also supported the concept of load center conversion of Montana's coal. Approximately 90 percent of coal mined in Montana is currently exported to other states.

Another facet of the "export" concept involves shipping coal to foreign countries, in particular Japan, South Korea, and Taiwan. For several years this practice was opposed by many Montana citizens and policymakers on the grounds that the impacts of surface mining and coal transportation would be too great. However, the 1981 Legislature repealed a 1975 law that banned the sale of coal from state lands to foreign countries. Passage of this law indicates that state policymakers consider exporting coal more acceptable than in the past.

During 1979, the Western Governors' Policy Office (WESTPO) examined the potential for coal exports and conducted preliminary negotiations with representatives of Japan, Taiwan, and South Korea. A Coal Export Task Force was formed to bring together coal companies, government agencies, railroads, and potential coal buyers. A study released by the task force in December 1981 stated that the major obstacle to establishing long-term, large-volume trade with Pacific Rim countries is that coal users are reluctant to consider long-term contracts without assurances that adequate coal production and transportation facilities are available, and the producers and transportation officials are hesitant to invest in new facilities until long-term contracts are signed. The report concluded, however, that for the next 5 to 10 years the United States has the capacity to serve an expected demand from the Pacific Rim countries that could rise from 25 million tons in 1981 to an estimated 118 to 134 million tons in 1990.

In October 1982, 22 western coal producers, railroads, and port authorities formed the Western Coal Export Council. The new group is an outgrowth of the export study sponsored by WESTPO in 1981. The major purpose of the organization will be to expand the trading dialogue established with the Pacific Rim countries by the WESTPO study, and to help establish the infrastructure in the western states needed to allow western coal producers to expand coal exports to the Pacific Rim market.

11.4. FEDERAL COAL MANAGEMENT PROGRAM

Background. The establishment of a new federal program in June 1979 marked the culmination of an almost decade-long effort by the U.S. Department of the Interior (USDI) to develop an acceptable program for coal leasing. The 1979 program was substantially influenced by the environmental and resource management legislation that followed enactment of the National Environmental Policy Act of 1969.

The program came in the wake of an administratively imposed moratorium on competitive and preference right leasing of federal coal. The moratorium had been imposed because, under the existing system, substantial amounts of federal coal had been sold or committed, although this had not led to increased coal production or, in many cases, to adequate levels of monetary return. A leasing program was developed between 1973 and 1975, but was halted in 1977 because the programmatic environmental impact statement (EIS) was found to be inadequate. In 1979 the U.S. Bureau of Land Management (BLM), by order of a federal court, issued a new comprehensive programmatic EIS for the coal leasing program.

Four major steps for coal leasing were delineated under the 1979 program: 1) lands acceptable for federal coal leasing consideration were identified; 2) the Secretary of the

Interior selected leasing target levels for each federal coal production region; 3) a schedule for coal lease sales in each federal coal production region for the coming four years was selected and analyzed in an EIS (this phase involved direct participation of state governors or their representatives); and 4) procedures for managing individual coal leases were established.

All new leases were to be compatible with a comprehensive land-use planning framework under the Federal Land Policy and Management Act. The planning system: 1) establishes minimum coal quality standards; 2) screens out lands that, by statute, cannot be leased (such as national parks); 3) screens out lands that cannot meet other suitability standards (such as alluvial valley floors and critical wildlife habitat areas); and 4) screens out lands that are not reclaimable (as defined in the federal Surface Mining Act—see section 7.5.7.1.). To date, area management plans have been completed in the Redwater, Decker-Birney, south Rosebud, Coalwood, and Powder River areas of Montana. All areas identified as "suitable" for mining are published in a notice of availability for leasing.

The nation's coal-bearing areas are divided into 12 coal regions. Eight of these regions contain significant reserves of federal coal. These eight coal regions are the basic units to which leasing levels are assigned and in which tracts are ranked, selected, and scheduled for sale under the federal coal management program. Major portions of two of these coal regions—the Powder River and the Fort Union regions—are located in eastern Montana.

The 1979 coal leasing program established regional coal teams as the foundation for cooperation between federal agencies and the states on federal coal leasing and development issues. Teams consist of the state governor or a governor's representative, the BLM state director or the director's alternate, and a team chairman appointed by BLM's Washington, D.C., headquarters. These teams were intended to decentralize decision making on such critical questions as how much coal should be leased, where it should be leased, and under what conditions. After regional lease sale EISs were completed, the regional coal teams' recommendations were to be forwarded to the Secretary of the Interior for final lease sale decisions. Montana representatives currently serve on the Powder River Regional Coal Team, whose first lease sale was held April 28, 1982, and on the Fort Union Coal Team, whose first lease sale is scheduled for July 28, 1983.

Final coal management regulations. Final regulations for federal coal management, exploration, and mining operations were issued by the BLM in August 1982. These regulations contain several significant revisions to the previous leasing policies. The new regulations are the result of a comprehensive review of the federal coal leasing program initiated by the Secretary of the Interior in April 1981 to streamline the coal leasing program.

While BLM states that the new rules will maintain public involvement and environmental controls, the rules have met with considerable controversy. A lawsuit was filed in September 1982 by the Natural Resources Defense Council and others—including Montana's Northern Plains Resource Council—challenging the revised leasing rules. The suit alleges, among other things, that the USDI failed to adequately explain its new policy and that the revised rules limit public participation in key decisions, such as setting leasing levels. Plaintiffs in the suit charge that the USDI will be able to lease huge quantities of coal with no regard for national need or adequate environmental protection. They say the new rules relax requirements that coal leases be developed quickly and that this relaxation will encourage industry speculation at the public's expense.

Opponents of the new leasing regulations also claim that the new rules:

— fail to meet the terms of the federal Surface Mining Act because they exclude criteria requiring lands to be designated unsuitable for mining if reclamation is technologically or economically infeasible;

— remove prior policy giving priority in land-use planning for coal leasing where surface-owner consent has been obtained; and

— put the burden on the surface owner to prove that he or she is "qualified" not to consent to leasing and fail to specify appeals procedures for such surface owners.

In addition, under the new policy coal will be leased to meet the industry's "demand for reserves" rather than the traditional "demand for production." BLM has calculated that, nationwide, coal companies hold 2.4 times as much coal as they produce. BLM will seek to maintain this "reserve to sustained production" ratio when it sells federal coal. Under the plan, production goals set by the U.S. Department of Energy are multiplied by 2.4. This will result in dramatically higher leasing targets than under the previous regulations. Opponents of the new program claim that USDI has failed to define adequately what the "demand-for-reserves" policy means.

The plaintiffs in the suit are seeking either to stop leasing or to return to the old rules until the case is resolved in court.

The governors of nine western states, including Montana, have opposed the new regulation which shifts the burden of proof for qualified surface owners from BLM to the owners and have asked for a definition of the "demand-for-reserves" policy. The governors have expressed concern that the ultimate effect of the new regulations is to centralize decisions on federal coal leasing in Washington, D.C. The governors have also protested the reduced role of the regional coal teams in decision making.

There are recent indications, however, that the USDI may revise its new coal leasing policies. At a meeting of western governors in November 1982, the Secretary of the Interior agreed to give the governors and the regional coal teams more of a voice in decisions affecting the process of awarding, exchanging, canceling, or reselling federal coal leases in their states. The agreement came after more than a year of effort by the western governors to protect the

states' role in federal coal leasing decisions, as intended in the original 1979 regulations.

Montana is represented on the USDI's Federal-State Coal Advisory Board. The board, which consists of all the state and federal members of the regional coal teams and is chaired by the director of the BLM, reviews new federal coal policies and makes recommendations on procedures to set regional coal leasing levels.

Powder River Basin Coal Lease Sale. In July 1981, the BLM released a draft EIS for the lease sale of federal coal in the Powder River Basin, a region encompassing parts of Montana and Wyoming. A final EIS for the proposed sale, released in December 1981, recommended leasing 1.5 billion tons of federal coal in the region. The sale, held on April 28, 1982, was the largest coal lease sale in history; it netted the federal government $55 million for mining rights plus 12.5 percent of the value of all coal produced. The five tracts in Montana which were leased contain an estimated 303.6 million tons of coal.

The Powder River coal lease sale has been extremely controversial. Two suits were filed in April seeking an injunction prohibiting final acceptance of lease bids by USDI. The Northern Cheyenne Tribe in Montana based its suit on the grounds that the EIS prepared for the sale failed to consider the impacts of mining on the reservation. The National Wildlife Federation, along with the Northern Plains Resource Council and the Montana Wildlife Federation, filed a suit claiming that USDI failed to take agriculture into account and failed to balance important wildlife habitat against the national need for coal. The Northern Cheyenne Tribe and the environmental coalition failed in their attempts to halt the sale by injunction, and are now seeking to invalidate the leases. U.S. District Judge James Battin heard initial arguments on both suits in December 1982; a decision is pending.

The sale also has drawn criticism from Congress. Congressional delegates have suggested that USDI may have violated federal law and deprived American taxpayers of receiving fair market value for public resources turned over to private developers. This controversy stems from the fact that the USDI, 24 hours before the sale, reduced its "minimum acceptable" bids for Powder River tracts from a total of $90 million to a total of $50 million. The National Wildlife Federation subsequently amended its suit to include allegations of improprieties regarding determination of fair market value.

Critics of the coal lease sale claim USDI has flooded an already soft coal market with Powder River Basin coal, resulting in a devaluation of public coal. They cite a 1981 report prepared by the federal Office of Technology Assessment that indicates an excess capacity of 100 million tons of coal in the Powder River Basin—coal that could be mined but for which there is no market.

The U.S. House Appropriations Committee conducted formal investigations into the lease sale in early 1983. The investigation considered USDI's fair market value determination procedures, federal coal leasing in general, and the recently finalized coal leasing regulations. The committee concluded that the government received $60 million less than fair market value for the coal sold.

A report issued in May 1983 by the U.S. General Accounting Office (GAO) concluded that the USDI Powder River lease sale was $100 million below the fair market value. The GAO recommended that the Secretary of the Interior cancel the Powder River leases and suspend all future coal lease sales until the department can "correct deficiencies" in its market value determinations and other procedures. A second round of federal coal leasing in the Powder River Basin is currently scheduled for June 1984.

Fort Union Coal Region Lease Sale. In July 1982, the BLM issued a draft EIS for the lease sale of federal coal in the Fort Union Region of Montana and North Dakota. The EIS assesses the environmental consequences of six alternative levels of coal development and recommends leasing an estimated 832.8 million tons of federal coal for new production and 203 million tons to keep existing mines producing. The lease sale, which includes three tracts in Montana, is scheduled for July 1983.

The BLM has issued an Air Quality Information Supplement to the draft EIS that states that the recommended coal leasing levels would result in excessive air pollution, which could possibly lead to an increased incidence of acid rain.

The draft EIS discussed a proposed land exchange between BLM and the Meridian Land and Minerals Company, a subsidiary of Burlington Northern, Inc. The exchange would allow Meridian to pursue synthetic fuels plant development and allow the federal government to acquire a solid block of minerals ownership. The two holdings where the exchanges would take place now exhibit a checkerboard ownership pattern. The proposed exchange was approved by the BLM in April 1983.

At hearings to gather public comment on BLM's draft EIS, some Fort Union area ranchers charged that the draft EIS fails to discuss the impacts of coal development on underground water supplies, soils, air quality, local government services, school enrollments, and agriculture.

The State of Montana has commented that the draft EIS underestimates the magnitude of the effect the higher leasing alternatives would have on the natural and cultural environments, and that the EIS does not adequately consider the most up-to-date estimates of the future market for Montana coal. The final EIS for the proposed sale was released in February 1983.

The Fort Union Region July 1983 coal lease sale could be delayed until questions about the USDI's leasing program are resolved. A U.S. House of Representatives Appropriations Subcommittee voted in April 1983 to block the Secretary of the Interior from holding further lease sales this fiscal year. The subcommittee vote, if upheld by the full Appropriations Committee and both houses of Congress, would force the USDI to postpone the Fort Union sale until the 1984 fiscal year.

11.5. OIL AND NATURAL GAS DEVELOPMENT IN MONTANA

The last several years have seen a sharp increase in oil and natural gas development in Montana as the price of those resources continues to rise and petroleum companies explore previously untapped geological formations and "frontier" areas. The rapid rate of this exploration effort has brought about social and environmental impacts to some parts of the state and public concern and involvement on the issue of where and how rapidly these resources should be developed. With 60 to 65 percent of the state's public and private lands leased for petroleum development, oil exploration can be expected to play a large role in Montana's energy future.

Eastern Montana. Exploration in the Williston Basin of eastern Montana and western North Dakota has produced major new finds of oil and natural gas in previously undrilled deep geological formations. Marked by a high rate of drilling success, the number of producing wells increased by 8 percent during 1981; a total of 1,080 active wells produced nearly 20 million barrels of oil in 1981. In all, 65 percent of the total state production of 30.8 million barrels was produced in the Williston Basin.

State and local governments, planning agencies, and private corporations are attempting to plan for the rapid growth that petroleum development has created in eastern Montana communities, especially in Sidney and Richland County (see section 8.10.).

Petroleum development has brought benefits such as more and better paying jobs to the region, while broadening and strengthening the local tax base. The social impacts of rapid development include a large influx of out-of-state workers in previously stable small towns, and a scarcity of adequate housing and community services. Eastern Montana is now faced with the problem of reconciling the benefits of added development with the social costs of the boom town syndrome.

Western Montana. Portions of the western third of the state are part of the geological Overthrust or "Disturbed" Belt, a region where older mountain rocks have been thrust hundreds of miles eastward over the younger strata of the plains. The Overthrust Belt has yielded significant quantities of hydrocarbons in both Alberta and Wyoming, while Montana has remained largely unexplored until the present.

With advanced seismic techniques and rigs capable of drilling 2 to 5 miles into the earth, interest in Montana's Overthrust Belt has increased dramatically in the last several years. Tens of thousands of acres of private lands in the Flathead, Mission, Blackfoot, Missoula, Bitterroot, Deer Lodge, and Big Hole valleys have been leased.

Federal lands comprise the majority of lands in Montana's Overthrust Belt. The Forest Service's Roadless Area Review and Evaluation process delayed leasing on much of the federal land in the region until the study's completion in the spring of 1979. Since 1979, approximately 3.2 million acres of national forest lands within the Overthrust Belt have been leased. Leasing recommendations have been made on an additional 1.3 million acres.

Designated wilderness areas and lands recommended for wilderness comprise approximately 3.7 million acres in Montana, though not all of this land is in the Overthrust Belt. Lease recommendations for these lands will be made by the U.S. Forest Service's Northern Region Forester during 1983, subject to any statutory changes such as those discussed in section 4.2.10.

If speculation about the Overthrust Belt's energy potential is correct, western Montana may be on the verge of an oil exploration and development "boom" that could have far-reaching consequences for the region.

11.6. STATE-FEDERAL ROLES IN ENERGY FACILITY SITING IN MONTANA

The past two years have seen both significant jurisdictional conflicts and significant progress in cooperation between state government and federal agencies responsible for various aspects of energy development and permitting in Montana. The state's role in siting federally sponsored energy projects, especially transmission lines, has been a major focal point of this issue. While a number of federal transmission projects are presently in various stages of planning and environmental analysis (see section 3.3.), the Bonneville Power Administration's (BPA) double-circuit 500-kilovolt transmission lines, which will carry Colstrip-generated power from a point near Townsend to the western Montana border, have received primary attention in the courts. Problems associated with this project also

have provided the major impetus for interagency efforts to develop a cooperative process for environmental analysis and decision making.

The Jurisdictional Conflict. In July 1976, the Board of Natural Resources and Conservation granted a certificate of environmental compatibility and public need, as required under Montana's Major Facility Siting Act (MFSA), to Montana Power Company (MPC) and four Pacific Northwest utilities for Colstrip Generating Units 3 and 4, 500-kilovolt transmission lines, and other associated facilities. In September 1977, MPC requested BPA to construct the 500-kilovolt transmission lines from the western border of Montana to the Helena-Ovando area. According to MPC, the primary reason for this transferral of ownership and construction responsibility was the alleged difficulty MPC experienced in obtaining easements along the corridor approved by the board, particularly across the Flathead Indian Reservation.

Because the transmission lines would cross federal lands, the Colstrip project owners applied for right-of-way permits from the U.S. Forest Service (USFS) and the Bureau of Land Management (BLM). Following the board's decision on the siting certificate, the federal agencies prepared the federal Colstrip Project Environmental Impact Statement (EIS), with BPA designated as lead agency, and selected a route for the transmission lines from Townsend west. This route differed from the route approved by the board. The board-approved route passed through the Helena area, over the Continental Divide near MacDonald Pass, and continued through the Ovando area and over the Jocko Pass to a substation at Hot Springs. The federal route proceeded south from Townsend through the Boulder and Deer Lodge areas and continued along an existing BPA transmission line right of way, which generally parallels the Clark Fork to Missoula, and then north to Hot Springs. In response to strong public concern and objection, BPA and the federal agencies prepared a supplemental EIS on the Townsend-Garrison segment of the line in 1981, which resulted in route modifications in the Boulder and Deer Lodge areas. A draft supplemental EIS for the segment of the system extending from Garrison to the Bell substation near Spokane, Washington, was published in 1982 (see section 3.3.1.3.). The final EIS on this segment was published in March 1983.

In meetings between the state, BPA, and the Montana Power Company during the spring of 1980, the state contended that BPA must comply with the MFSA for the construction of the 500-kilovolt transmission facilities. BPA and its parent agency, the U.S. Department of Energy (DOE), responded that BPA was not subject to the MFSA. Also, the U.S. Department of Agriculture stated that the USFS would not require BPA to comply with a mandatory right-of-way condition contained in the Federal Land Policy and Management Act (FLPMA), which states that right-of-way permittees on federal lands must comply with state siting laws.

On March 3, 1981, the State of Montana sought a declaratory judgment against BPA, stating that BPA's actions violated the MFSA and that the BPA, BLM, and USFS were violating FLPMA. Shortly thereafter, Missoula County and several other parties filed a separate action against the BPA, BLM, and USFS, seeking an injunction against the federal agencies to prevent construction of the proposed transmission line from Townsend to Bell, Washington.

On January 28, 1982, U.S. District Judge James Battin denied Missoula County's request for a preliminary injunction on the project and concluded that "BPA need not apply for a Montana certificate of environmental compatability so long as the substantive requirements of the Montana Major Facility Siting Act are met." This conclusion followed the decision of an earlier case known as the *Columbia Basin Land Protective Association v. Schlesinger* decision, which ruled that BPA had to comply with the standards of the Washington State siting statute. Also in the *Columbia Basin* decision, the judge ruled that: "The BPA is not required to go through the entire certification process, but it does need to submit the information which Washington needs to determine whether the BPA has indeed met the state's substantive standards of its siting act."

In January 1982, BPA requested that Montana's Board of Land Commissioners grant easements for its line across state lands on the route the federal agencies had selected. The land board refused to grant the easements until BPA complied with the MFSA.

On March 4, 1982, Judge Battin ruled in the State of Montana suit that "Bonneville Power Administration must comply with the substantive requirements of the Montana Major Facility Siting Act." Also, Battin ordered BPA and the other federal agencies to submit information to the state within 30 days (of his decision) "so that the state may make a decision upon whether the state's substantive standards have been complied with."

During the period March-May 1982, the Department of Natural Resources and Conservation reviewed the federal EISs and other information submitted by BPA (see section 3.3.1.3.). The Board of Natural Resources and Conservation's final determination on BPA's compliance was scheduled for June; however, on June 1, the federal agencies went back to Judge Battin, seeking an order that they had complied with the siting act or, alternatively, an order requiring the state to show cause why they should not be found in compliance. The federal agencies were particularly concerned that the state was studying alternatives other than the route they had selected, most notably alternatives to their proposed Missouri River crossing near Townsend. They raised a number of issues and questions concerning the state's authority to actually site the line, but Judge Battin deferred ruling on the federal agencies' motion until the state made its determination. On June 18, the board determined that BPA would be in compliance if certain conditions and construction guidelines were followed.

On August 13, 1982, Judge Battin issued an order which authorized BPA to proceed with construction. Battin stated that the MFSA lacks "pre-existing, tangible, objec-

tive criteria" which a project sponsor can follow to meet the law's general requirement that projects must have minimum adverse environmental impact. According to Battin, "the inherent subjectiveness of such a concept prohibits its use as a substantive standard" because the state does not have superior powers to say what is "best" for a federal agency. The state is currently seeking further judicial review of this issue.

State-Federal Cooperation. The jurisdictional issues surrounding federal and state responsibilities for energy facility siting may not be legally resolved for some time. Timing, however, was one of the major problems which exacerbated the jurisdictional conflicts associated with siting the Townsend-Garrison portion of BPA's line. Battin's March 1982 decision triggered the state's entry into the siting process at almost the same time BPA was preparing to put out construction contracts for its route. This created considerable pressure that was counterproductive for all parties concerned. Considering the number of federal energy transmission projects in various stages of planning and environmental analysis in Montana, the need for coordination of federal and state decision-making processes was imperative.

In August 1982, the state and BPA signed two memorandums of understanding (MOU). One of these was a broad agreement that will be the basis for cooperative development of policies and programs in facility siting, energy conservation, promotion of renewable energy technologies, and other areas of mutual concern. The other MOU dealt specifically with facility siting and contained agreements between BPA and DNRC to jointly prepare environmental statements on future projects and to conduct joint studies of environmental impacts, alternative technologies, centerline studies, and all activities required for the state to determine compliance with the MFSA. Additionally, the state and BPA agreed to meet periodically to exchange information and obtain state recommendations on BPA's long-range plans, policies, and rules for locating, constructing, and operating transmission lines in Montana, as well as purchasing electric power within Montana. BPA agreed to notify DNRC of new proposed projects as soon as it is reasonably anticipated they will affect the state and before BPA applies for congressional authorization for funding these projects. The Board of Natural Resources and Conservation will carry out its decision-making responsibilities in conjunction with federal agency decision makers and issue concurring decisions on individual projects, if possible.

These agreements complement an earlier MOU for joint facility siting that has existed between the state, USFS, and BLM since 1976; this MOU was further enhanced in 1982 with the creation of the Corridor Oversight Review Committee (see section 5.10.2.2.2.).

In an attempt to avoid the scheduling problems that occurred on the Townsend-Garrison segment of the BPA line, in May 1982 the state and BPA entered into a specific project agreement and made funding arrangements for the state's MFSA-related studies of the segment of the line from Garrison to the western Montana border (see section 3.3.1.3.).

An MOU for joint facility siting has not yet been negotiated with the Western Area Power Administration (WAPA), but specific project agreements have been reached for coordinating studies on the federal agency's Great Falls-Conrad line (see section 3.3.4.1.) and for the state's assessment of the Fort Peck-Havre line (see section 3.3.4.2.).

Even though numerous legal questions remain unresolved, the specific project agreements and the memorandums of understanding with the BPA, WAPA, USFS, and BLM are providing the initial basis for a federal-state partnership in the siting of major federal energy facilities in Montana.

11.7. CANADIAN ENERGY DEVELOPMENT

Montana residents have voiced concern over the potential air and water quality impacts of two Canadian energy development projects near Montana's border—the proposed Cabin Creek coal mine in British Columbia and the Poplar River coal-fired power plants in Saskatchewan. These projects are described below.

Cabin Creek Coal Mine. Cabin Creek, a tributary of the North Fork of the Flathead River, is the site of a proposed open-pit coal mine in southeastern British Columbia, 8 miles north of the Montana border. Sage Creek Coal Ltd., a joint venture of Rio Algom Mines Ltd. and Pan Ocean Oil Ltd. of Calgary, Alberta, first proposed a mining complex in 1975 but withdrew its application for a mining permit in July 1980. Substantial mine plan alterations and a need for more detailed environmental and socioeconomic information were the reasons given for withdrawing the permit request. The application was resubmitted to the B.C. provincial government in 1981.

The mine would consist of two open pits, each about a mile long and 1,000 feet deep. The coal deposit is low in sulfur, has a relatively high Btu content, and is predominantly high-grade metallurgical coal of the type used in steel and other metal smelting operations. Current mine plans may be altered, however, to emphasize production of

"thermal" coal, which could be used to fuel power plants. This would allow more coal to be recovered from the mine since lower-grade and waste coal not suitable for metallurgical purposes could be sold as fuel-grade coal.

The company plans to transport the coal 68 km by truck over existing forestry roads to a coal load-out facility at Morrissey, B.C., where it would be loaded onto trains. The coal is currently destined for Japanese markets; however, extensive development will depend on improved market conditions in Japan. The proposed production rate of 2.2 million tons per year for 21 years would require a labor force of approximately 450 to 500 persons, who would live in Fernie, B.C., and commute to the mine site daily.

The State of Montana has been monitoring the Cabin Creek proposal since its inception and has been involved in extensive discussion with the Canadian government, the International Joint Commission, and the U.S. State Department to ensure that the quality of the North Fork of the Flathead River is preserved. The 1975 Montana Legislature directed DNRC to conduct a study of the upper portion of the Flathead River drainage and northern portion of Flathead Lake, and to evaluate the probable impact of development of the Cabin Creek coal deposits and attendant urbanization of the headwaters region. The study, entitled *The Upper Flathead River Basin Study,* was published in January 1977.

In 1977 Congress authorized $2.9 million, to be administered by the U.S. Environmental Protection Agency (EPA), for a five-year Flathead River Basin environmental impact study to assess the impacts of accelerating resource development in the Flathead River Basin. The Flathead River Basin study team is gathering air quality, water quality, and fish and wildlife information in anticipation of the mine and potential oil and gas developments. The study is intended to head off international disputes that could arise if pollution from the projects threatens Glacier National Park or other parts of western Montana.

Although regional impact studies have been undertaken for other areas, the Flathead study is the only one directed by a committee of local, state, and federal officials, private citizens, environmental groups, and industry representatives. This steering committee is directly responsible for managing the study. It has undertaken a number of studies to develop a solid baseline of existing land, water, air, and social conditions and to predict how different types of development would affect the Flathead River Basin. The study is scheduled to be completed in June 1983. The steering committee has recommended creation of a permanent Flathead Lake Commission that would report annually on the condition of the upper Flathead watershed.

Sage Creek Coal Ltd. is currently in the second stage of British Columbia's three-stage permitting process. Stage I involved an inventory of the resource; Stage II includes an environmental impact assessment. The coal company is awaiting "approval in principle" of its Stage II application from the provincial government. If approval is granted, a permit for the project may be issued during Stage III.

In May 1982, Montana's governor sent the government of British Columbia a 126-page report, based on data gathered in the Flathead Basin Study, that addressed the mining company's Stage II environmental assessment. The governor stated that this is the first time the State of Montana has had the opportunity to comment on a major development within Canada before a permit has been issued. In his comments, the governor addressed Montana's major concerns regarding the Cabin Creek mining proposal:

— The North Fork of the Flathead River, a Class I (highest value) fishery resource and designated by Congress in 1978 as a wild and scenic waterway, is significantly threatened by the proposed mine on Cabin and Howell creeks. Elements such as phosphorus, nitrogen, and trace metals could significantly increase in the Flathead system. Increased sediment and dewatering of bull trout spawning areas may also occur. The entire Flathead River/Lake drainage is consequently threatened.

— Air quality, although not addressed in the Stage II application, is of particular concern as it relates to Glacier National Park. Montana standards for particulates, sulphur dioxide, and, perhaps, visibility would be violated in this Class I airshed. (See section 5.6.1. for a more complete discussion of Class I air quality standards.)

— The reclamation plan submitted was far less than what Montana would consider appropriate for ensuring the long-term protection of the Flathead River system.

— Little attention was given to maintaining critical habitat for the protection of both the fishery and wildlife. The mine proposal seriously threatens three species protected by the U.S. government—the grizzly bear, the Rocky Mountain wolf, and the bald eagle—as well as other wildlife species.

In April 1983, a petition signed by over 4,000 people, including many residents of Polebridge, Montana, was presented to British Columbia's premier. The petition requested a delay in approving the mine until it can be demonstrated that the project will not harm the North Fork of the Flathead River and the air quality of Glacier National Park.

In November 1982, officials from Sage Creek Coal announced that they were postponing their decision to start up operations at Cabin Creek until at least the end of 1983. Reasons given were the current poor world market for coal and the delays in seeking provincial government approval of the project. The company had hoped to begin production in 1985.

Poplar River Electric Generating Complex. In 1974 the Saskatchewan Power Corporation (SPC), owned by the citizens of Saskatchewan, proposed a four-unit, 1,200-megawatt thermal electric generating complex (including a reservoir with 33,000 acre-feet of storage capacity) on the East Poplar River and a new lignite coal mine near Coronach, Saskatchewan, just north of the international boundary. This complex will affect air quality and water quantity and quality in northeastern Montana.

The first 300-megawatt unit began operating in 1981. The second is scheduled to begin operating in June 1983.

The water issues have received considerable attention to date. The International Joint Commission (IJC) issued a water apportionment report for the Poplar River Basin in April 1978. It recommended that the aggregate natural flow of waters in the basin that crosses the international boundary be apportioned equally between the United States and Canada. Montana supports the recommended apportionment on the condition that any agreement on this issue will not preclude future negotiations to resolve water quality issues. A formal water apportionment agreement has yet to be finalized, although Canada has agreed to be bound by the IJC's recommended apportionment. A committee of Montana and federal officials was recently formed to finalize an apportionment agreement.

In 1977 the IJC established the International Poplar River Water Quality Board and charged it with the task of determining the water quality impacts of the proposed development. The board's report, which was released in July 1979, concluded that total dissolved solids (TDS) and boron are the pollutants most likely to be increased by the SPC plant at Coronach. These pollutants may affect crops in Montana.

In response to requests by the U.S. State Department and the Environmental Protection Agency (EPA), and after consultation with Montana's congressional delegation, EPA prepared an environmental impact statement (EIS) on the impact of Canadian power plant development and flow apportionment in the Poplar River Basin. The draft EIS was completed in July 1980; the final EIS was issued in June 1981.

The relative importance of irrigation in the Poplar River Basin became an issue in these international proceedings. The operation of the plant and its ancillary facilities near Coronach will almost certainly affect irrigation more than any other water use. Commenting on the Poplar River draft EIS, the state recommended more extensive water quality monitoring at all boundary stations during the period of spring runoff, with objectives aimed at protecting against elevated TDS and boron concentrations.

In 1981 the IJC recommended that compensation be paid to northeastern Montana farmers whose crops might be damaged by polluted water, that a binational commission be established to handle compensation claims, and that SPC pay any judgments awarded by the commission. The IJC also recommended increased water pollution monitoring programs in the Poplar River Basin.

Although air quality matters are outside the jurisdiction of existing treaties and agreements, the two governments have established a binational committee to monitor air and water quality in the Poplar River Basin. U.S. members of this committee include a U.S. Geological Survey representative, a representative of the governor of Montana, and a county commissioner from the neighboring Montana county—Daniels County. To date the committee has met twice, exchanged information and published a 1981 annual report. The report, which concerns the plant's first year of operation, indicates no apparent effects on surface water quality or on ground water quantity, although on occasion the 24-hour standards for total suspended particulates have been exceeded.

The State of Montana has long been concerned about the impact of the proposed Canadian electric generating complex. The 1977 Legislature passed a resolution urging the federal government to negotiate a treaty with Canada to address air pollution near the international boundary. Negotiations on this treaty recently were suspended because the Canadian government is unwilling to agree to any such treaty until the U.S. government acts to halt the problems that acid rain, thought to be caused primarily by U.S. industries, has brought about in Canada. A second resolution passed by the 1977 Legislature established a state policy that the plants should not violate federal or state air pollution standards, that the Saskatchewan government should install air pollution controls on the plants, and that transboundary impact matters should be referred to the IJC. SB 393, also passed in 1977, amended Montana's air and water pollution laws to allow enforcement against violations by Canadian residents and others not residing in Montana.

The State of Montana has continued to express concern that air quality studies have been inadequate to date and questions whether it is appropriate for the government of Saskatchewan to construct an additional generating unit in the absence of adequate air quality data.

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ENERGY-RELATED AGENCIES AND ORGANIZATIONS

STATE AGENCIES

(Montana state government agencies will be converting to a new telephone system in December 1983. If you do not have a state government telephone directory, call the Capitol Operator at 444-2511 for assistance.)

Montana Department of Administration
Sam W. Mitchell Building
Helena, MT 59620
(406) 449-2032

Montana Department of Agriculture
Scott Hart Building
303 Roberts
Helena, MT 59620
(406) 449-3144

Montana Department of Commerce
1424 9th Avenue
Helena, MT 59620
(406) 449-3494

- Economic and Community Development Division
  (406) 449-3757
- Coal Board
  (406) 449-3494

Montana Department of Fish, Wildlife and Parks
Fish, Wildlife and Parks Building
1420 East 6th Avenue
Helena, MT 59620
(406) 449-2535

Governor's Office
State Capitol
Helena, MT 59620
(406) 449-3111

Montana Department of Health and Environmental Sciences
Cogswell Building
Helena, MT 59620
(406) 449-2544

- Air Quality Bureau
  (406) 449-3454
- Occupational Health Bureau
  (406) 449-3671
- Solid Waste Management Bureau
  (406) 449-2821
- Water Quality Bureau
  (406) 449-2406

Montana Department of Highways
Highway Building
2701 Prospect Avenue
Helena, MT 59620
(406) 449-2482

Montana Department of State Lands
1625 11th Avenue
Helena, MT 59620
(406) 449-2074

- Environmental Impact Statement Team
  1539 11th Avenue
  Helena, MT 59620
  (406) 449-2711

Offices of the Montana Legislature

- Consumer Counsel
  34 West 6th Avenue
  Helena, MT 59620
  (406) 449-2771
- Environmental Quality Council
  State Capitol
  Helena, MT 59620
  (406) 449-3742
- Legislative Council
  State Capitol
  Helena, MT 59620
  (406) 449-3064

Montana Department of Natural Resources and Conservation
32 South Ewing
Helena, MT 59620
(406) 449-3712

- Energy Division
  (406) 449-3780
- Oil and Gas Conservation Division
  2535 St. Johns Avenue
  Billings, MT 59102
  (406) 656-0040
- Water Resources Division
  (406) 449-2872

Office of Public Instruction
State Capitol
Helena, MT 59620
(406) 449-3654

Public Service Commission
1227 Eleventh Avenue
Helena, MT 59620
(406) 449-3008

Montana Department of Revenue
Sam W. Mitchell Building
Helena, MT 59620
(406) 449-2981

Research and Information Division
(406) 449-3149

Montana Department of Social and Rehabilitation Services
SRS Building
111 Sanders
Helena, MT 59620
(406) 449-3860

Economic Assistance Division
(406) 449-4540

Montana University System

Montana College of Mineral Science and Technology
Butte, MT 59701
(406) 496-4101

Montana State University
Bozeman, MT 59717
(406) 994-0211

University of Montana
Missoula, MT 59812
(406) 243-0211

FEDERAL AGENCIES

U.S. Department of Agriculture

Forest Service
Northern Region 1
Federal Building
P.O. Box 7669
Missoula, MT 59807
(406) 329-3711

U.S. Army Corps of Engineers

Missouri River Division
P.O. Box 103
Downtown Station
Omaha, NE 68101
(402) 221-7208

North Pacific Division
P.O. Box 2870
Portland, OR 97208
(503) 221-3768

U.S. Department of Energy

Locator Operator
All Washington, D.C., DOE offices
(202) 252-5000

Denver Support Office
P.O. Box 26247, Belmar Branch
Lakewood, CO 80226
(303) 234-2165

Bonneville Power Administration
Montana District Office
800 Kensington
Missoula, MT 59801
(406) 449-3860

Western Area Power Administration
Billings Area Office
P.O. Box EGY
Billings, MT 59101
(406) 657-6532

U.S. Environmental Protection Agency

Montana Office
Federal Building
301 S. Park, Drawer 10096
Helena, MT 59626
(406) 449-5432

U.S. Department of the Interior

Fish and Wildlife Service
Field Office
Federal Building, Room 3035
316 North 26th Street
Billings, MT 59101
(406) 657-6750

Geological Survey
Water Resources Division
Federal Building, Drawer 10076
301 South Park
Helena, MT 59626
(406) 449-5263

Bureau of Indian Affairs
Billings Area Office
316 North 26th Street
Billings, MT 59101
(406) 657-6315

Bureau of Land Management
222 North 32nd Street
P.O. Box 30157
Billings, MT 59107
(406) 657-6561

Minerals Management Service
P.O. Box 2550
Billings, MT 59103
(406) 657-6181

Bureau of Reclamation
Upper Missouri Region
316 N. 26th Street
P.O. Box 2553
Billings, MT 59103
(406) 657-6218

Office of Surface Mining,
Reclamation and Enforcement

Northwest Field Office
P.O. Box 1420
Mills, WY 82644
(307) 261-5776

Western Technical Center
1020 15th Street, Brooks Towers
Denver, CO 80202
(303) 837-5421

REGIONAL ORGANIZATIONS

Council of Energy Resource Tribes
5660 South Syracuse Circle, Suite 206
Englewood, CO 80111
(303) 779-4760

Northwest Conservation Act Coalition
1516 Melrose Avenue
P.O. Box 20458
Seattle, WA 98102
(206) 624-2875

Northwest Power Planning Council
United Carriage Building
700 S.W. Taylor, Suite 200
Portland, OR 97205
(503) 222-5161
Toll Free: 1-800-547-0134

Pacific Northwest Utilities Conference Committee
520 S.W. 6th Avenue, Suite 505
Portland, OR 97204
(503) 223-9343

Western Governors' Policy Office
3333 Quebec Street, Suite 3000
Denver, CO 80207
(303) 399-9957

Western Interstate Energy Board
3333 Quebec Street, Suite 3500
Denver, CO 80207
(303) 377-9459

LOCAL GOVERNMENT

Montana Association of Counties
1802 11th Avenue
Helena, MT 59601
(406) 442-5209

Montana League of Cities and Towns
P.O. Box 1704
Helena, MT 59624
(406) 442-8768

PRIVATE ORGANIZATIONS

Alternative Energy Resources Organization
424 Stapleton Building
Billings, MT 59101
(406) 259-1958

New Western Energy Show
324 Fuller, C-4
Helena, MT 59601
(406) 443-7272

Montana Coal Council
2301 Colonial Drive
Helena, MT 59601
(406) 442-6223

Montana Energy Research and Development Institute
P.O. Box 3809
Butte, MT 59702
(406) 782-0463

Montana Petroleum Association
Helena Office
2030 11th Avenue, Suite 17
Helena, MT 59601
(406) 442-7582

Montana Solar Energy Industry Association
P.O. Box 871
Helena, MT 59624
(406) 442-1480

National Center for Appropriate Technology
P.O. Box 3838
Butte, MT 59702
(406) 494-4572

Northern Plains Resource Council
419 Stapleton Building
Billings, MT 59101
(406) 248-1154

UTILITIES

Great Falls Gas Company
P.O. Box 2229
Great Falls, MT 59403
(406) 761-7100

Montana-Dakota Utilities
400 No. 4th Street
Bismarck, ND 58501
(701) 224-7900

Billings Office
2603 2nd Avenue N
Billings, MT 59101
(406) 245-4161

Montana Light and Power Company
P.O. Box V-X
Libby, MT 59923
(406) 293-4141

Montana Power Company
General Offices
40 East Broadway
Butte, MT 59701
(406) 723-5421

Pacific Power and Light Company
Kalispell Office
P.O. Box 250
Kalispell, MT 59901
(406) 755-7461

Rural Electric Cooperatives

Beartooth Electric Cooperative
Box 1119
Red Lodge, MT 59068
(406) 446-2310

Big Flat Electric Cooperative
P.O. Box H
Malta, MT 59538
(406) 654-2040

Big Horn County Electric Cooperative
P.O. Box AE
Lodge Grass, MT 59050
(406) 639-2341

Fall River Electric Cooperative
P.O. Box AE
Ashton, ID 83420
(208) 652-7431

Fergus Electric Cooperative
P.O. Box 4040
Gilt Edge Route
Lewistown, MT 59457
(406) 538-3465

Flathead Electric Cooperative
2510 Highway 2 East
Kalispell, MT 59901
(406) 755-5483

Glacier Electric Cooperative
P.O. Box 358
410 East Main
Cut Bank, MT 59427
(406) 873-5566

Goldenwest Electric Cooperative
P.O. Box 245
Wibaux, MT 59353
(406) 795-2423

Hill County Electric Cooperative
Highway 2 West—Box 430
Havre, MT 59501
(406) 265-7804

Lincoln Electric Cooperative
Box 628
Eureka, MT 59917
(406) 296-2511

Lower Yellowstone Electric Cooperative
Box 951
Sidney, MT 59270
(406) 482-1602

Marias River Electric Cooperative
P.O. Box 729
910 Roosevelt Highway
Shelby, MT 59474
(406) 434-5575

McCone Electric Cooperative
P.O. Box 368
Circle, MT 59215
(406) 485-3465

Mid-Yellowstone Electric Cooperative
P.O. Box 386
Hysham, MT 59038
(406) 342-5521

Missoula Electric Cooperative
1950 West Sherwood
Missoula, MT 59802
(406) 549-6115

Northern Electric Cooperative
P.O. Box 287
Opheim, MT 59250
(406) 762-3352

Northern Lights
1423 Dover Highway
P.O. Box 310
Sandpoint, ID 83864
(208) 263-5141

Park Electric Cooperative
Box 908
Livingston, MT 59047
(406) 222-3100

Ravalli County Electric Cooperative
Box 109
Corvallis, MT 59828
(406) 961-3001

Sheridan Electric Cooperative
P.O. Box 227
Medicine Lake, MT 59247
(406) 789-2231

Southeast Electric Cooperative
P.O. Box 368
Ekalaka, MT 59324
(406) 775-8762

Sun River Electric Cooperative
P.O. Box 217
Fairfield, MT 59436
(406) 467-2526

Tongue River Electric Cooperative
P.O. Box 138
Ashland, MT 59003
(406) 784-2341

Valley Electric Cooperative
P.O. Box 392
Glasgow, MT 59230
(406) 367-5315

Vigilante Electric Cooperative
225 E. Bannack Street
P.O. Box 71
Dillon, MT 59725
(406) 683-2327

Yellowstone Valley Electric Cooperative
P.O. Box 8
Huntley, MT 59037
(406) 348-3411

Related Organizations

Central Montana Electric Generation
and Transmission Cooperative
P.O. Box 50085
Billings, MT 59105
(406) 248-7936

Upper Missouri Generation and
Transmission Electric Cooperative
P.O. Box 1069
Sidney, MT 59270
(406) 482-4100

Western Montana Electric Generating and Transmission
P.O. Box 310
Sandpoint, ID 83864

Basin Electric Power Cooperative
1717 E. Interstate Avenue
Bismarck, ND 58501
(701) 223-0441

Montana Associated Utilities
P.O. Box 1306
Great Falls, MT 59403
(406) 454-1521

INDIAN TRIBES

Assiniboine and Sioux Tribes of the
Fort Peck Reservation
Fort Peck Tribal Board
P.O. Box 1027
Poplar, MT 59255
(406) 768-3759

Mineral Rights Office
P.O.Box 1338
Poplar, MT 59255
(406) 768-5331

Office of Environmental Protection
P.O. Box 506
Poplar, MT 59255
(406) 768-5209 or 3400

Blackfeet Tribal Business Council
P.O. Box 850
Browning, MT 59417
(406) 338-7521

Natural Resources Office
(406) 338-5525

Chippewa-Cree Tribes of the
Rocky Boys Reservation
P.O. Box 544
Box Elder, MT 59521
(406) 395-4285

Department of Natural Resources
P.O. Box 1092
Box Elder, MT 59521
(406) 395-4278

Confederated Salish and Kootenai Tribes
of the Flathead Reservation
P.O. Box 278
Pablo, MT 59855
(406) 675-2700

Air Quality Office
P.O. Box 418
St. Ignatius, MT 59865
(406) 745-4242

Natural Resources Department
P.O. Box 98
Pablo, MT 59855
(406) 675-4600

Crow Tribal Council
P.O. Box 159
Crow Agency, MT 59022
(406) 638-2601

Gros Ventre and Assiniboine Tribes
of the Fort Belknap Reservation
Fort Belknap Community Council
P.O. Box 249
Fort Belknap Agency
Harlem, MT 59526
(406) 353-2205

Northern Cheyenne Tribal Council
Lame Deer, MT 59043
(406) 477-6284

COAL MINING COMPANIES

Beartooth Coal Company
121 S.W. Salmon
Portland, OR 97204
(503) 642-1704

Beartooth Coal Mine Office
Box 2110
Red Lodge, MT 59068
(406) 446-2033

Coal Creek Mining Company
P.O. Box 145
Ashland, MT 59003
(406) 784-2356

Consolidation Coal Company
CX Ranch Mine (proposed)
43 E. Loucks, Suite 207
Sheridan, WY 82801
(307) 672-8971

Decker Coal Company
P.O. Box 3049
Sheridan, WY 82801
(307) 672-3401

Mine Office
P.O. Box 12
Decker, MT 59025
(406) 757-2561 or 2266

Divide Coal Mining Company
Box 342
Roundup, MT 59072
(406) 323-1646

Hathaway Coal Company
915 S. Merriam Avenue
Miles City, MT 59301
(406) 232-1909

Peter Kiewit Sons
Wolf Mountain Mine (proposed)
P.O. Box 3049
Sheridan, WY 82801
(307) 672-3401

Knife River Coal Mining Company
1915 N. Kavaney Drive
Bismarck, ND 59501
(701) 223-1771

Savage Mine Office
Box 37
Savage, MT 59262
(406) 798-3651

Meridian Land and Minerals Company
(proposed mine)
Box 2521
Billings, MT 59103
(406) 256-4500

MONTCO
P.O. Box 789
Billings, MT 59103
(406) 252-5208

Northern Energy Resources Company
111 S.W. Columbia, Suite 800
Portland, OR 97201
(503) 796-6600

Sheridan Office
P.O. Box 4000
1542 N. Main
Sheridan, WY 82801
(307) 672-0451

Spring Creek Coal Company
Mine Office
P.O. Box 67
Decker, MT 59025
(406) 757-2581

P.M. Coal Company
Goulding Creek Route
Roundup, MT 59072
(406) 323-1131

Peabody Coal Company
Rocky Mountain Division
10375 E. Howard Avenue, Suite 400
Denver, CO 80231
(303) 337-5903

Big Sky Mine
P.O. Box 97
Colstrip, MT 59323
(406) 748-2321

Shell Oil Company
(proposed mine - Crow Reservation)
Powder River Basin
P.O. Box 2906
Houston, TX 77252
(713) 870-2863

Blaine Warburton
Blackjack Coal Mine
Route 70, Box 51
Chinook, MT 59523
(406) 870-3511

Western Energy Company
107 East Granite
Butte, MT 59701
(406) 723-4349

Billings Office
P.O. Box 1899
Billings, MT 59103
(406) 252-2277

Rosebud Mine
P.O. Box 67
Colstrip, MT 59323
(406) 748-2366

Westmoreland Resources, Inc.
P.O. Box 1883
Billings, MT 59103
(406) 248-7803

Absaloka Mine
P.O. Box 449
Hardin, MT 59034
(406) 342-5241

Acronyms Used in the Index

MBMG	Montana Bureau of Mines and Geology
MDOA	Montana Department of Agriculture
DOC	Montana Department of Commerce
DFWP	Montana Department of Fish, Wildlife and Parks
DHES	Montana Department of Health and Environmental Sciences
DOH	Montana Department of Highways
DSL	Montana Department of State Lands
DNRC	Montana Department of Natural Resources and Conservation
PSC	Montana Public Service Commission
MDOR	Montana Department of Revenue
SRS	Montana Department of Social and Rehabilitation Services
USBLM	U.S. Bureau of Land Management
USBR	U.S. Bureau of Reclamation
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
USDOE	U.S. Department of Energy
USFS	U.S. Forest Service
USDI	U.S. Department of the Interior
WAPA	Western Area Power Administration

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